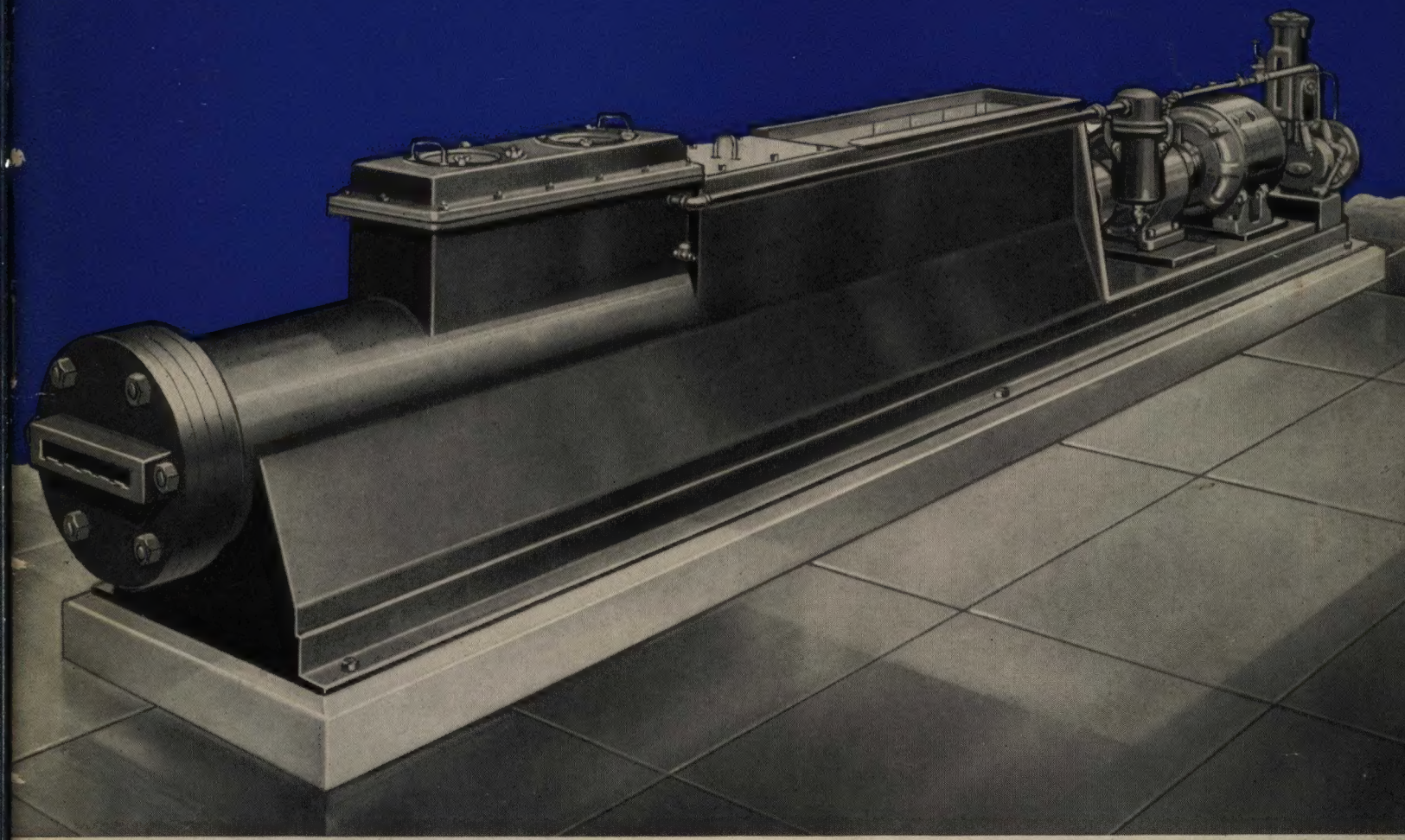


# INTERNATIONAL



## *BRICK AND TILE* MACHINERY



# INTERNATIONAL Brick and Tile Machinery

## INCLUDING VAC-AIRE DE-AIRING

U. S. Patent No. 1964266

British Patent No. 408740

Other Patents Pending

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# Vac-Aire DE-AIRING

• for •

## Brick, Tile, Fire Brick, Sewer Pipe, Etc.

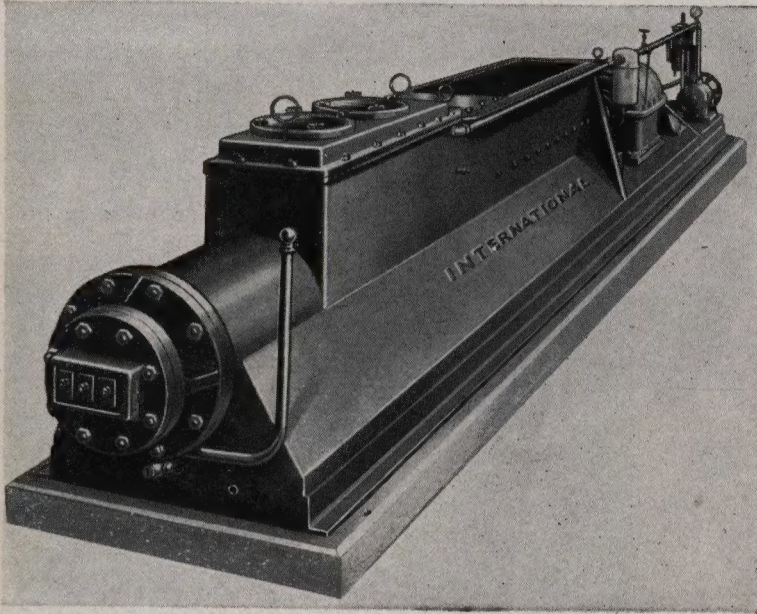


FIG. 19

Vac-Aire for Heavy Structural Products

### Homogeneity

An extruded bar of clay that is absolutely homogeneous and free from lumps—hard or soft.

This condition is due entirely to Vac-Aire design—a long preliminary mixing in the built-in pug-mill with an additional time of mixing in the long de-airing chamber.

### Longer Vacuum Chamber

Vac-Aire Machines have a longer de-airing chamber as against former designs, which depended on almost instantaneous evacuation as the clay leaves the seal die. The loose clay is under constant internal explosive action for several feet, which automatically thoroughly granulates it to a grain size that takes out the greatest possible percentage of air.

Again, a long de-airing chamber does away with the possibility of the chamber packing tight with clay because of a possible change in the feed speed.

Again, this design gives a constant and even flow of material to the extruding augers—no bridging in the chamber, as the machine is in a straight line with constant forward movement.

Vac-Aire presents to you a line of machines that we believe comes closer to the ideal in de-airing than any machines so far offered the trade. The period of de-airing being much longer than other machines, produces a more granulated material with a resultant better de-airing job.

The technical proof of this is an examination of the emerging column which shows a smoother and a better mix, while the commercial proof is that every Vac-Aire purchaser is a satisfied customer, and every Vac-Aire machine sold to date has been paid for by the purchaser.

Where you add to the above facts—all steel welded construction—one shaft only in the machine—low head room—easier and quicker repairs—adjustable expressing and seal augers—quick auger and seal accessibility and standard type of gear reducer drive—you have a line of de-airing machines much in advance of their time.

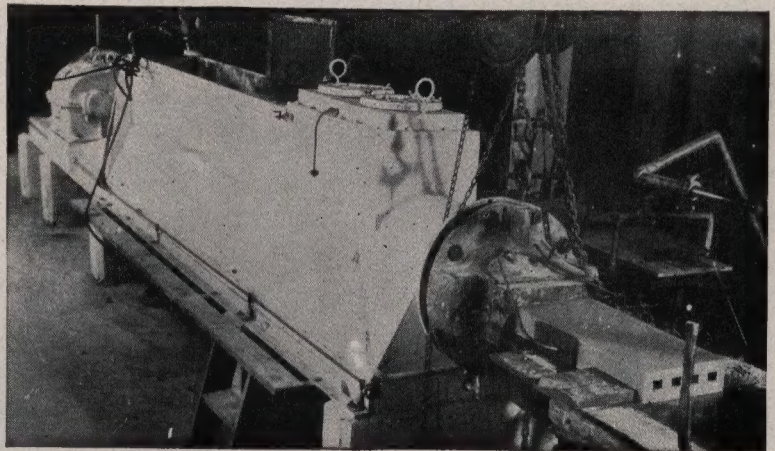


FIG. 101

"Falcon" Running Glazed Tile

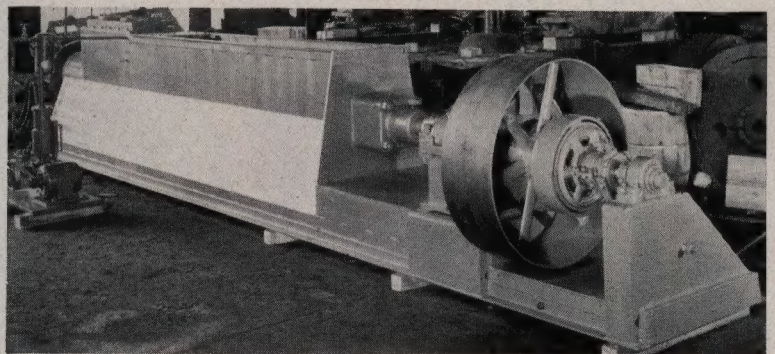


FIG. 26

Showing Flat Belt Drive



# VAC-AIRE DE-AIRING

## Adjustable Seal Auger

By means of an adjustable seal auger (patent being applied for), which auger can be quickly moved forward to, or backward from the seal die, the rate of flow through the seal die can thus be regulated for any individual clay, no matter what its water content or rate of flow factor. This adjustment also allows the operator to reduce power to that point where the rate of flow required and the ability to hold the vacuum are in perfect balance. This coordination of the auger distance from the seal die with the degree of seal shutter opening, gives the operator an absolute adjustment of vacuum, power, and column flow rate that is near the miraculous.

## Front Bearing

The front bearing of the auger and pug shaft is situated immediately in front of the seal die and its outside diameter is smaller than the emerging clay tube from the seal die into the de-airing chamber and is protected by an extension of the seal core, hence the front bearing is never under pressure, which gives it a long life.

## Gear Reduction

Instead of using the conventional home-made type of gears, each Vac-Aire drives through a standard gear reduction, attached to the machine's one shaft by a flexible coupling. Vac-Aire Machines are the first to employ this type of drive so prevalent in other industries.

## Why?

### A 100% Success

- Better Air Evacuation
- Quick Seal Die Change
- Easy Auger Accessibility
- Gear Reduction Drive
- Adjustable Seal Auger
- All Steel Construction
- Fewer Working Parts
- Low Head Room
- Long De-Airing Chamber
- Adjustable Front Auger
- Low Maintenance

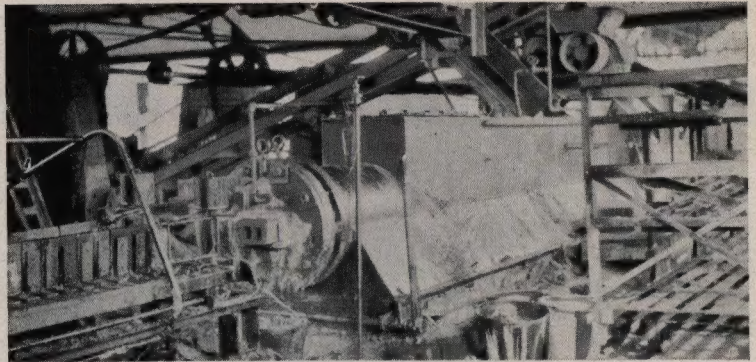


FIG. 18—Vac-Aire "Hawk" Producing Hollow Tile on the Equator

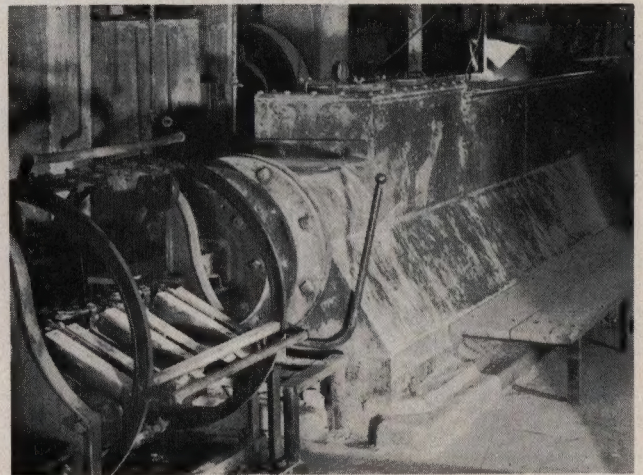


FIG. 102—"Eagle" on Hollow Tile

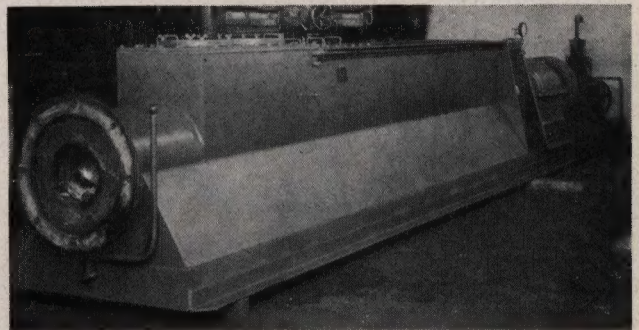


FIG. 103—"Eagle" in Our Shop

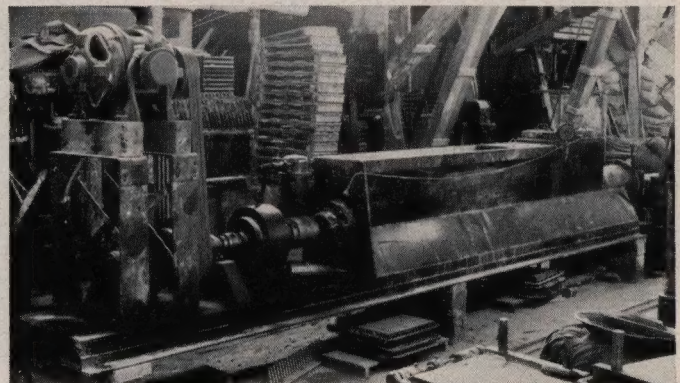


FIG. 104—Vac-Aire Machine—Floor and Wall Tile in California



# VAC-AIRE DE-AIRING

Vac-Aire Machines are without question of doubt, the most advanced design in de-airing of heavy clay products now offered to the clayworkers of the world—all steel construction of the electric welded type, therefore, stronger than other types of machines—lowest in head room of all de-airing auger machines combined with pugmills—the simplest constructed machine with the fewest working parts now made—better evacuation of air due to the extra long de-airing chamber—quick accessibility to the seal die and seal augers, permitting seal auger change in far shorter time than any other combined auger and pug de-airing machines.

## SIZE TO USE—

VAC-AIRE "CONDOR"—for brick and structural tile in exceedingly large capacities from 7500 to 15000 brick (U. S. size) per hour, and 25 tons and up per hour of structural tile from average clay; standard length of pugmill 8 ft. Can also be fitted with large diameter augers for 24" wide block for large sections of machine-made terra cotta, etc.

VAC-AIRE "EAGLE"—for brick and structural tile at capacities of 6000 to 7500 brick (U. S. size) per hour and structural tile in proportion. Standard length of pug tub or mixing chamber, 8 feet.

VAC-AIRE "HAWK"—for brick and structural tile 4000 to 6000 brick (U. S. size) per hour and structural tile in proportion. Standard length of pug tub or mixing chamber, 8 feet.

VAC-AIRE "FALCON"—for brick, structural tile and drainage or earthen soil pipe, quarry and floor tile, roofing tile. Capacity in brick (U. S. size) 2500 to 3500 per hour. Standard length of pug or mixing chamber, 8 feet.

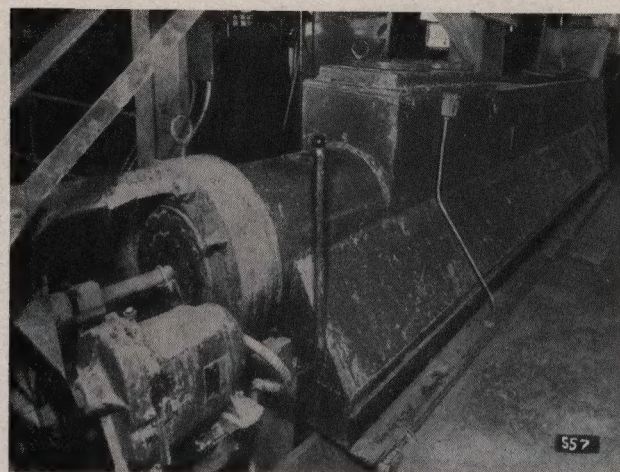


FIG. 105  
"Hawk" De-Airing Sewer Pipe Clay

VAC-AIRE "POTTER"—for pugging and extrusion of sagger clay, porcelain mix, quarry tile and wall tile, drainage or earthen soil pipe, roofing tile. Standard length of pug tub or mixing chamber, 8 feet.

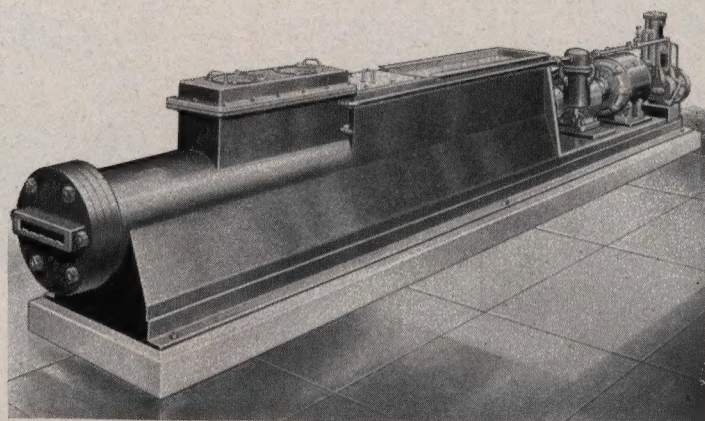


FIG. 105-A  
Vac-Aire "Potter"—Floor Tile

## BRICK AND TILE—SIZES AND SPECIFICATIONS—FIRE BRICK AND SEWER PIPE

Name of Machine	Approx. Cap. Brick per Hour	Dia. Std. Expressing Auger Lip	Shaft Dia.	Thrust Bearing	Type of Gear Drive	Size Vac. Pump in Cu. Ft.	Approx. H.P. Required	H.P. Pump Furnished	Type Clutch	Approx. Net Wt. lbs.	Approx. Export Wt. lbs.	Standard Drive	Std. Length Pugmill	Inside Dia. Pug Tub	Length Overall with Pugmill	Width Overall	Height Overall	Height to Center Die	Code Word
Condor	Above 7500	17 1/2"	8"	Timken	Standard Reducer	60	150-200	5	Dodge	30000	35000	V-Belt	8'	30"	37'7"	76"	70"	34"	XBB
Eagle	6000-7500	16"	7"	"	"	45	100-150	3	"	22000	25000	"	8'	24"	32'	55"	53"	26"	XBC
Hawk	4000-6000	14"	6 1/4"	"	"	28	75-100	2	"	18000	21000	"	8'	22"	30'1"	49"	48 5/8"	23"	XBD
Falcon	2500-3500	12"	5 1/4"	"	"	15	45-60	1 1/2	"	14000	16500	"	8'	20"	28'5 3/8"	43"	43 3/8"	20"	XBE
Potter	Tile, etc.	10"	4 1/2"	"	"	15	20-30	1 1/2	"	10500	12500	"	8'	18"	27'4"	36"	39 1/4"	17"	XBF

## NOTES

All brick capacities standard U. S. building brick type (Hollow tile tonnage in proportion).

Above machines can also be furnished for flat belt if desired.

Standard equipment for V-belt or flat pulley drive includes die, pugmill, pump, pump drive and pump motor, clutch, V-belt drive or flat pulley, in fact everything but main drive motor and starter.

For construction purposes use only certified prints.



# Vac-Aire "Experimental"

## Production Type

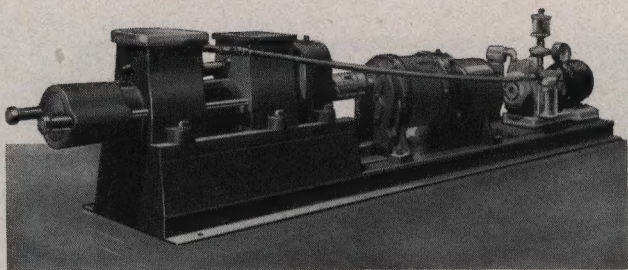


FIG. 106

"Experimental" with Gear Motor Drive

**GENERAL CONSTRUCTION**—Base is all steel welded construction. Two main castings used both alike—one for the feed hopper and seal auger and the other for the de-airing chamber and the extrusion auger and both castings are plated inside and outside with a non-ferrous metal to do away with rust in washing out the machine as well as rust in the product—augers are manganese bronze chromium plated—seal die and shredder are heat treated steel—forced feed in both hopper and de-airing chamber—thrust is manganese bronze. One shaft only with all augers in a straight line on the same shaft—drive is through a standard well-known gear reducer to a V-belt and motor—motor pulley is of the variable speed kind with a 30% speed variation—standard motor is a 1 H.P., 1750 R.P.M.

**NOTE:** Machine can be fitted with gear motor drive as shown in Fig. 106 at some additional cost.

**VACUUM PUMP**—This is a well-known make complete with a  $\frac{1}{4}$  H.P. motor as well as filter and vacuum gauge—vacuum obtainable 28" to 28 $\frac{1}{2}$ " by actual test.

**DIES**—Machine as a standard is fitted with one die, a solid column 1" square to 1"x2" rectangular. (Exact requirements of size to be given us). Special dies at extra cost. Die can be changed in a couple of minutes and distance between auger and rear of dies easily varied.

A de-airing extrusion or auger machine designed primarily for the testing of clays under de-airing conditions in clay plant laboratories, universities, as well as for the commercial production of small section clay products.

**PRODUCTS**—Hollow tubing from the size of "spaghetti" (multiple stream) up to approximately 3" O.D. with varying wall thickness—miniature hollow building tile up to 2 $\frac{1}{2}$ "x2 $\frac{1}{2}$ " square—round solid tubing from  $\frac{1}{16}$ " diameter (multiple stream) up to 2" diameter—rectangular or square bars up to 2"x2" as well as many special shapes.

This machine is especially fitted for the extrusion of multiple columns of small cross section.

**DISMANTLING**—By taking off two front nuts and four foundation bolts the entire machine can be immediately slipped apart for a quick clean; this being extremely suitable for laboratory work where many materials are tested daily.

**MACHINE COMPLETE**—Machine is furnished complete with both motors so that on receipt it is ready for operation.

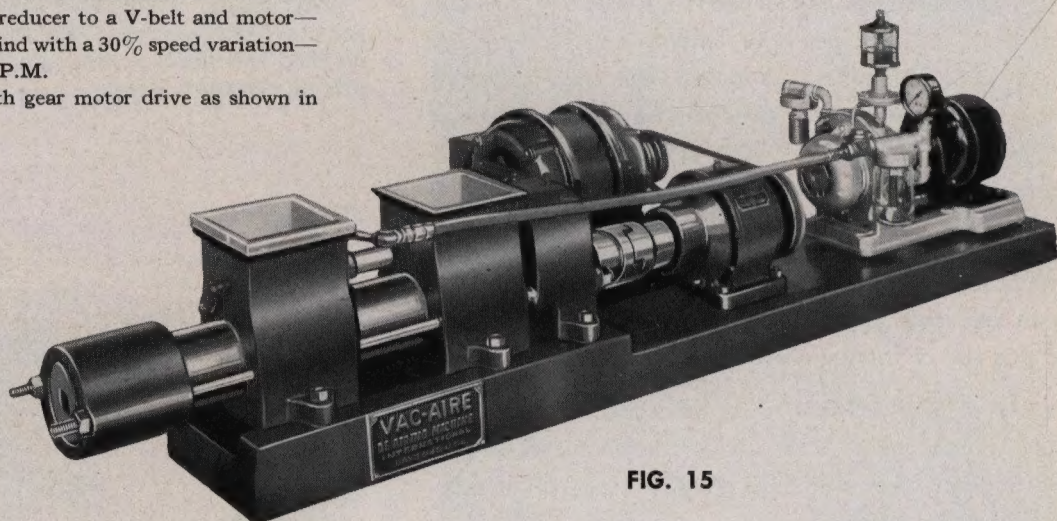


FIG. 15

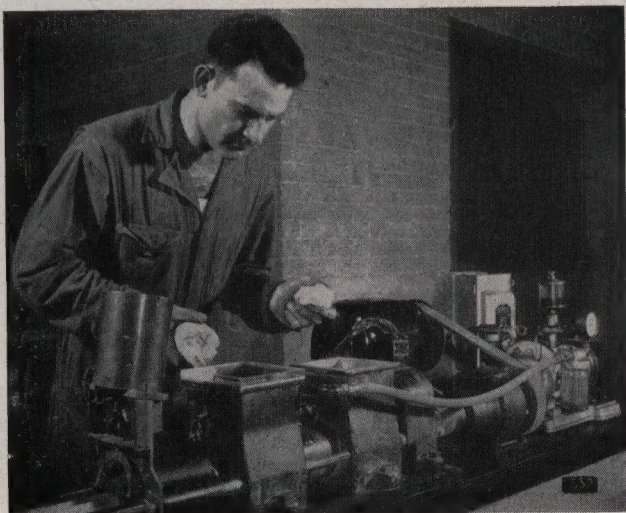


FIG. 107

"Experimental" Running Two Streams in Production



FIG. 108

"Experimental" in Fire Brick Laboratory



# Vac-Aire "CHEMIST"

---

## A Production Machine Built Similar to the "Experimental"

---

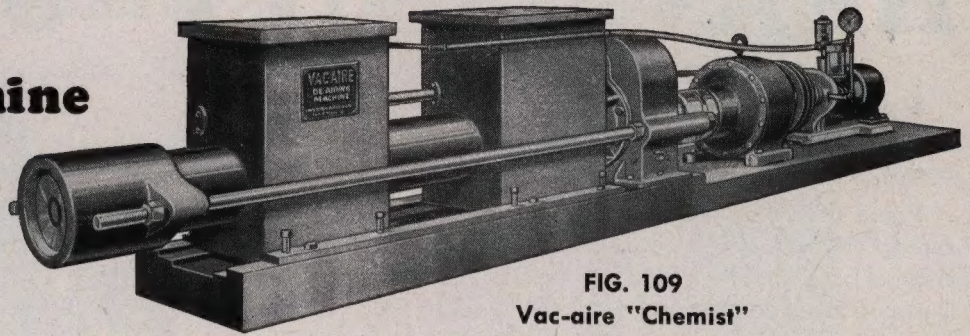


FIG. 109  
Vac-aire "Chemist"

The Vac-Aire "Chemist" is built in a similar manner to the "Experimental," that is, it can be dismantled, cleaned and reassembled in a short time. The "Chemist" though has a 4 1/4" auger (3 1/4" at tip if desired), as compared with 3" on the "Experimental." It also has a 3 H.P. or 5 H.P. driving motor, the size depending on the service and the product to be made. Its vacuum pump is also the same as that used on the "Experimental."

On account of its larger auger diameter and its extra power, the "Chemist" has a much greater production than the "Experimental," and also will make a larger square area product.

The "Chemist" can, if desired, be fitted with a 30" long rear hopper containing pug knives, and it comes complete ready to operate except a switch, and can be fitted with a gear motor drive instead of a separate reducer and motor, if customer so desires.



FIG. 111  
"Experimental" in Laboratory

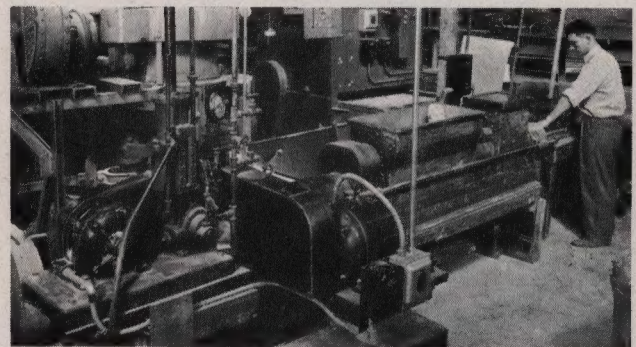


FIG. 112  
"Chemist" in Porcelain Production



FIG. 110  
Vac-Aire "Experimental" in Laboratory Work. No Other Machine Similar Built. Found in Most Ceramic Schools and Laboratories

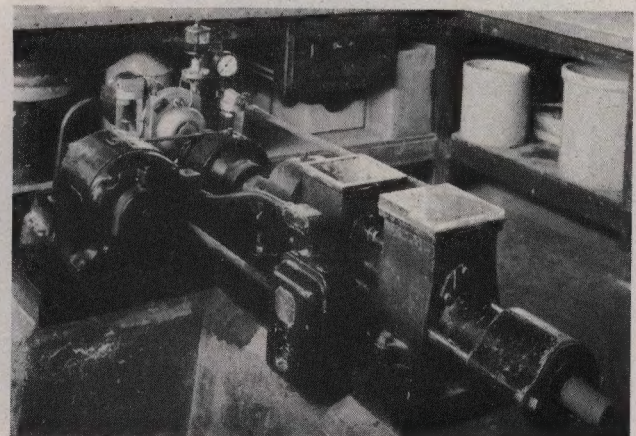


FIG. 113  
"Experimental" in Ceramic School

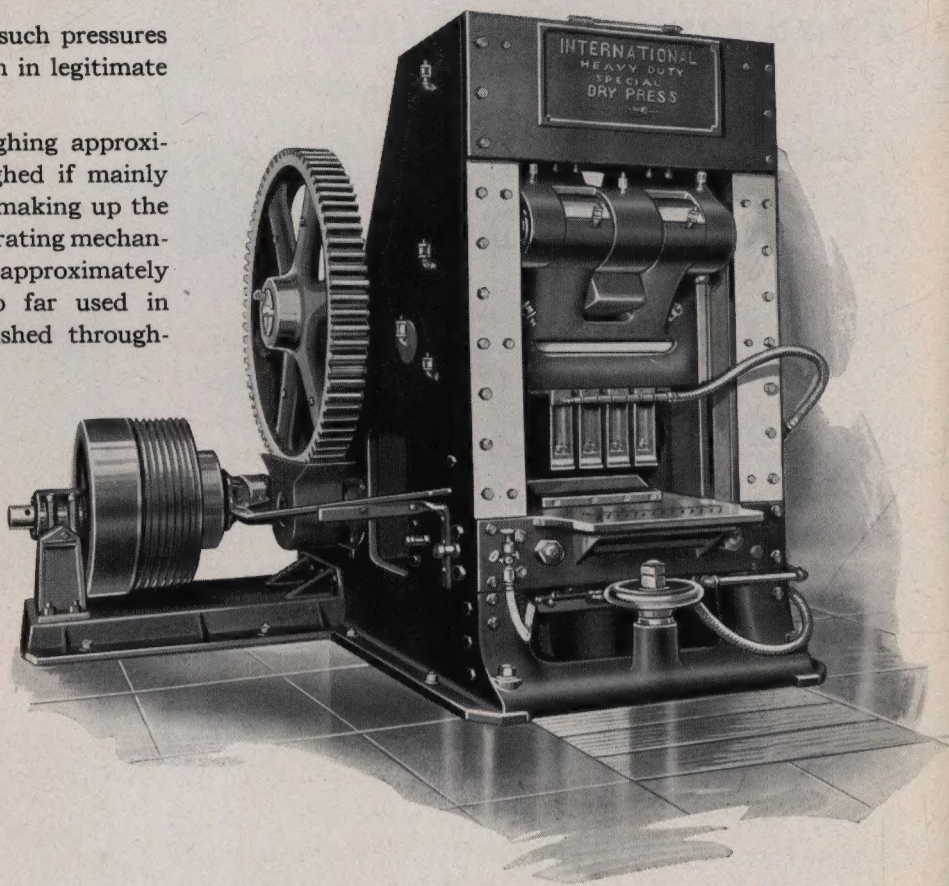


# DRY PRESS HEAVY DUTY "SPECIAL"

A press built with such strength and for such pressures that we do not believe that it can be broken in legitimate operation.

Think of it!—A press made of steel weighing approximately 28 tons. (What would it have weighed if mainly built of cast iron?)—weight of plates alone making up the 1-piece frame approximately 16,000 lbs.—operating mechanism as shown in photo on ninth page weighs approximately 18,000 lbs.—shafts much heavier than so far used in mechanical press construction. Bronze bushed through-out—Hyatt and bronze bearings, no bab-bitt used—improvements such as carrying operating mechanism on an air cushion and change of lower plunger height without shim-ming. Think of the satisfaction of having such a press in your plant.

**PRODUCTS**—Largest fire clay block (green)—31"x15"x6". Refractory brick (squares)—four or five bricks at a revolution as customers may desire. Building brick—4, 5 or 6 bricks at a revolution. (If six bricks, green size must not be over 4" wide.)



**FIG. 114**  
Front View of Press

**CAPACITY**—Fire brick (squares)—2000 or 2500 per hour, depending upon whether 4 or 5 bricks are pressed per revolution. Building brick—2000 per hour with a 4-mold die, 2500 with a 5-mold, 3000 per hour with a 6-mold.

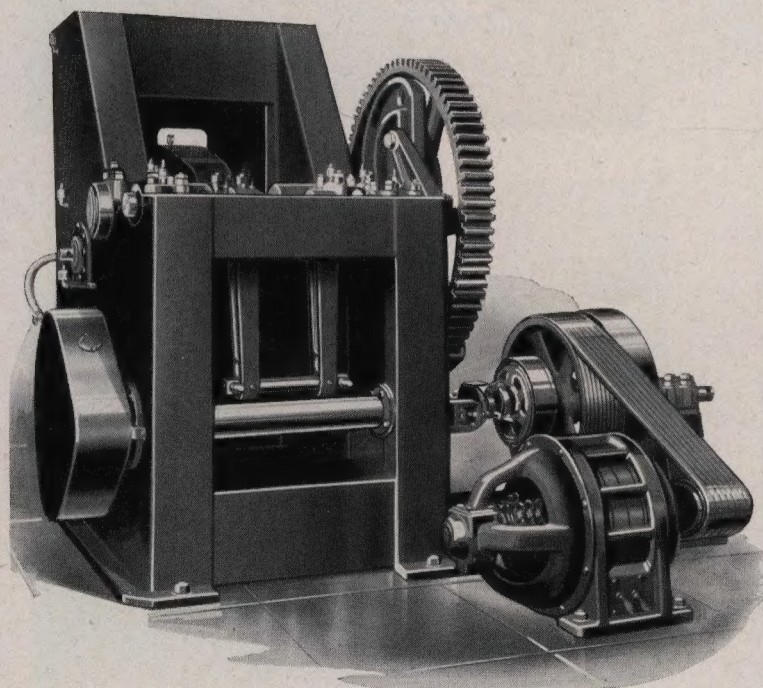
**PRESS WEIGHT**—Approximate net shipping weight 56,000 lbs. Approximate gross weight crated for export, 62,000 lbs.

**GENERAL DIMENSIONS**—Height over all 9' 10". Width of main frame at die height 60". Width over all 11'. Length over all 10' 7 1/2".

**HORSE POWER**—This depends upon the product made and pressures used. Average 30.

**DRIVE**—Standard method is a V-belt furnished by us of approximately 35 H.P. Motor speed suggested, 860.

**SHAFTS**—High carbon steel—Crankshaft 8" diameter, intermediate 5 5/8" diameter—drive shaft 4" diameter—upper toggle shaft 8" diameter—intermediate 5 5/16"—lower toggle 4 15/16" diameter. Stationary shaft on which operates cam roller 7 3/4" diameter—shaft from which charger is operated 4 7/16" diameter.



**FIG. 115**  
Rear View of Press



# ALL STEEL FRAME

## One Piece Frame

**BEARING HOUSINGS**—All cast steel welded into the frame before machining.

**BEARINGS**—Drive shaft and intermediate shaft have Hyatt roller bearings, crankshaft and charger shaft are bronze bushed—toggle shafts are bronze bushed.

**BEARING CONTAINERS**—All Hyatt bearing containers are made of cast steel slipped into the machined bearing housings and bolted to the main frame in a similar manner to a cylinder head.

**TOGGLES**—All heavy section cast steel, are bronze bushed. Over all width of toggles 52".

**CROSS-HEADS**—Upper cross-head is of cast steel with bearing full length of lower toggle—lower cross-head is of cast steel with 8" round projection at each end which projection fits into lower side bar bearing—lower cross-head also contains the air cylinder for shock absorbing in operation. Both upper and lower cross-heads have a mortise running full length for the plungers' accurate attachment.

**SIDE BARS**—High carbon steel  $8\frac{1}{2}" \times 5"$  smallest cross section. Compare these with any other press made—expanded ends are bored for 8" cross-head and toggle bearings.

**LIFTING BEAM**—An enormous steel casting of H-Beam design which with caps, alone weighs 2200 lbs.

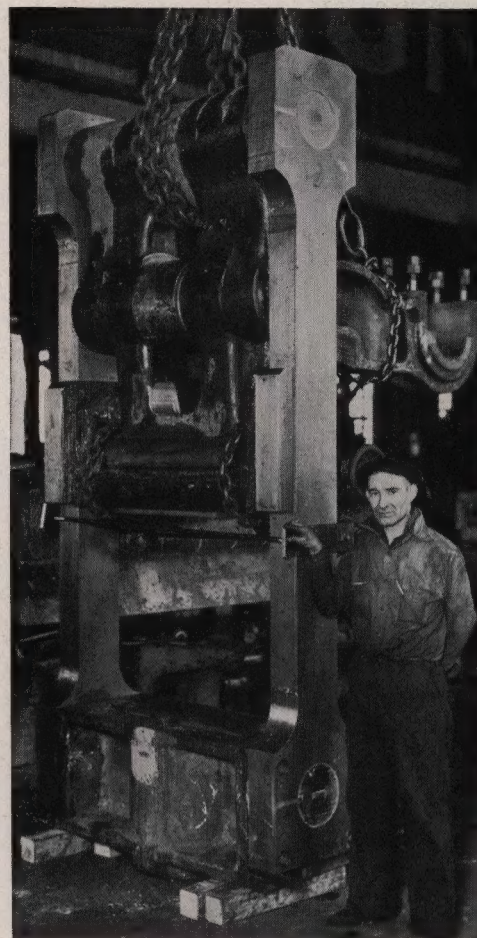


FIG. 117

Photo—All Steel Operating Mechanism is compared in size to a man. Weight of above assembly is approximately 18,000 lbs.

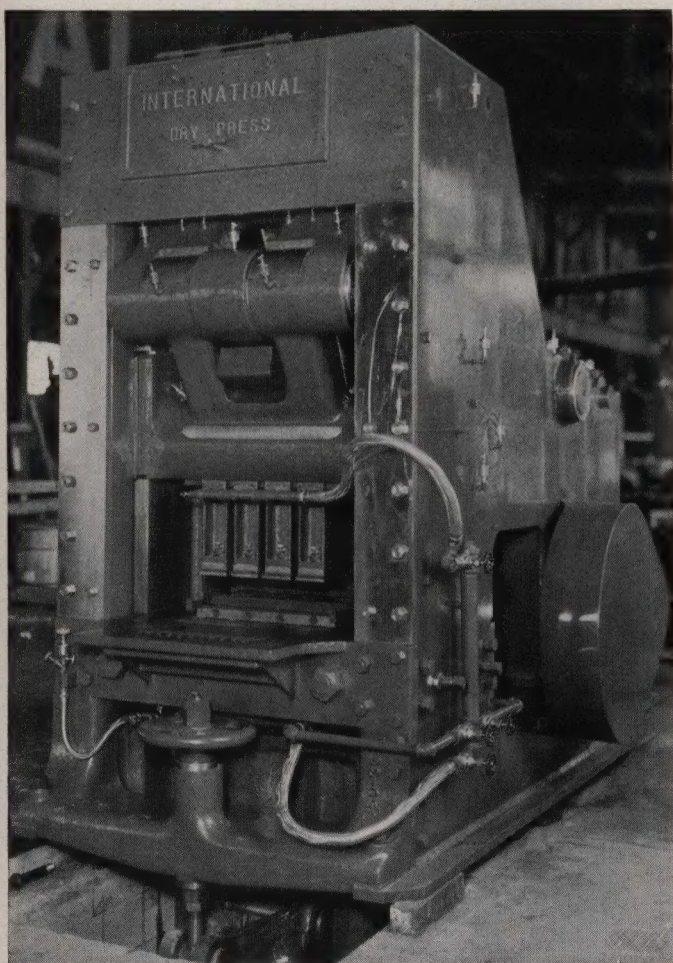


FIG. 116

Showing Opposite Side of Press

**ROCKER CAM**—Cast steel, machined in contour and heat treated.

**CAM ROLLER**—Cast steel, bronze bushed.

**GEARING**—All cast steel with cut teeth; main gear  $68\frac{1}{4}"$  diameter x 7" face; Intermediate gear  $38\frac{1}{2}"$  diameter x 6" face.

**PINIONS**— $13\frac{1}{8}"$  diameter x 7" face and  $8\frac{3}{8}"$  diameter x 6" face.

**LOWER PLUNGER ADJUSTMENT**—The roller cam shaft  $7\frac{3}{4}"$  diameter is fitted with an eccentric adjustment, permitting the adjustment of the height of the lower plungers without shimming.

**PRESS FRAME**—All steel heavy plate construction welded into one piece with the use of 600 to 800 ampere electric welders. Frame alone weighs approximately 16,000 lbs. Think of what it would weigh if it had been made mainly of cast iron. The one-piece frame after being completely welded with bearing housings also welded in place is then normalized in a large furnace to alleviate any welding strains. All frame machining is done (note photograph) on the completed frame.



# "SPECIAL" DRY PRESS

**DE-AIRING**—The International Heavy Duty Special Dry Press can be fitted with a very efficient method of de-airing as shown on following page in the shop photo of a de-airing International Standard Press of the lighter type.

**PRESSURES**—Three distinct pressures are given the product—first, downward; second, upward; third, downward with a dwell to express the maximum amount of air from the product.

**AIR CYLINDER**—The entire toggle, crank, side bar and cross-head assembly drops on to an air cushion which takes up the shock of operation without the use of springs and other devices. This is a considerable contribution to the science of dry press manufacture.

**DIE HEATING**—Press is arranged for mold box, plungers and tables to be heated with either steam or electric current as customer may desire, steam being used as a standard.

**PRESSING TIME**—The pressing time is a little over 50% of the operating cycle, thus allowing a maximum time for release of air in the brick.

**MOLD BOX**—Made as a separate integral unit which can be slipped out of the front of the press in record time and with the use of two or more mold boxes, dies can be changed rapidly. This design is a distinct improvement for refractory work. Mold box is 12" deep.

**CLUTCH**—Dodge or equivalent. Standard R.P.M. drive shaft for brick 210.

**DRIVE POSITION**—Standard position of drive is on left side of press when facing front of press, but drive can be placed on right side if customer desires.

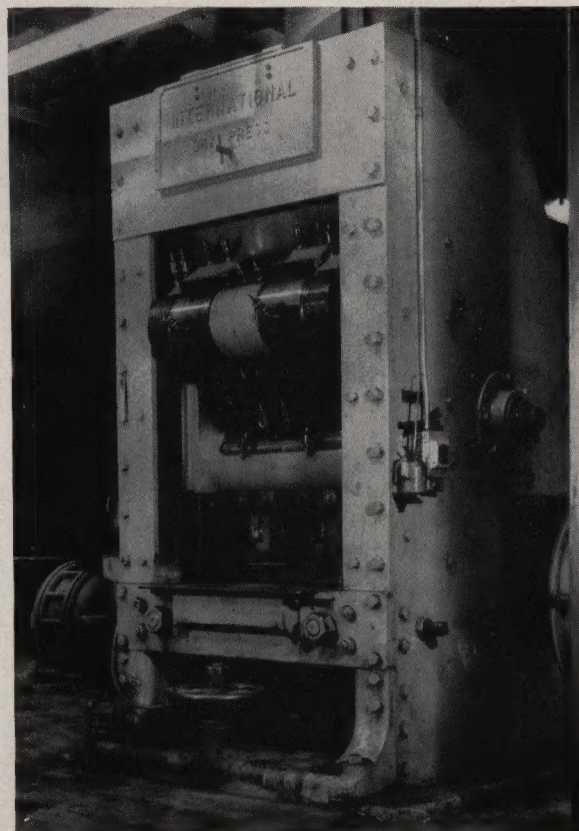


FIG. 119  
Press Manufacturing Dolomite Fire Brick

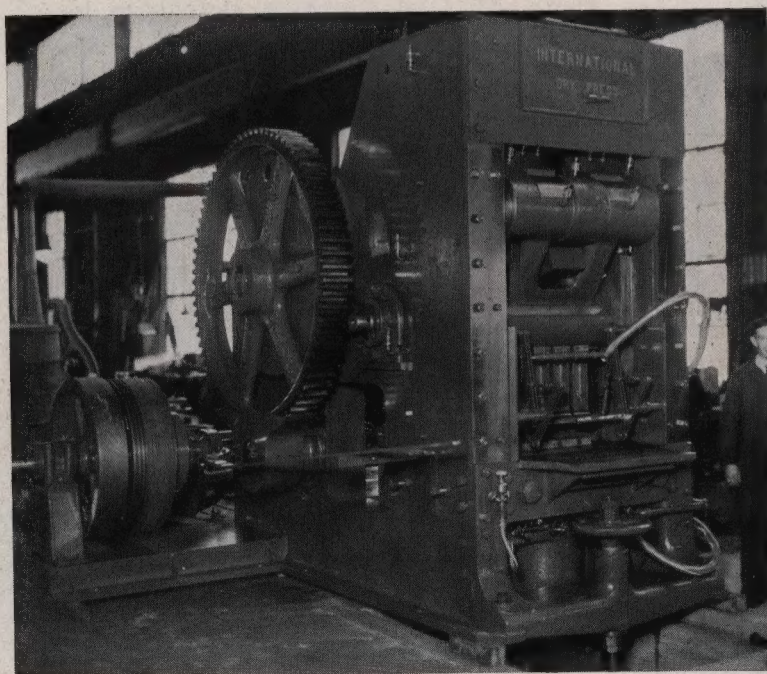


FIG. 118  
Photo—Showing Special Swabbing Device for Cleaning Upper Plungers

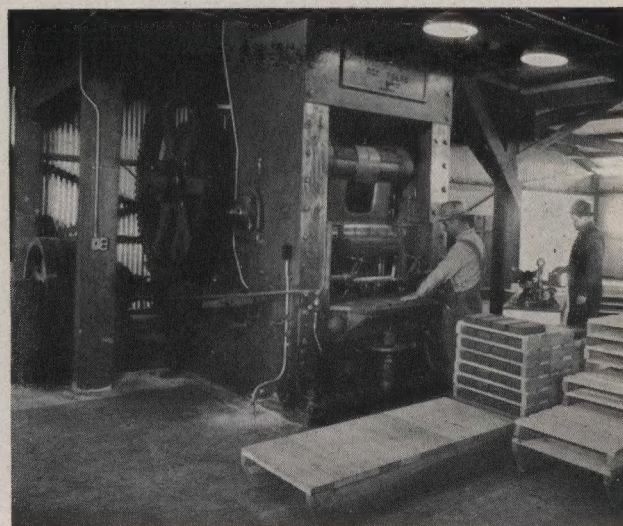


FIG. 120  
Press Manufacturing Flat Tile



# STANDARD DRY PRESS

for

## Building and Face Brick --Fireclay Products

The Standard Press has been designed especially for those plants specializing in building products, as well as fireclay goods not over  $3\frac{1}{4}$ " to  $3\frac{1}{2}$ " thick. The Press is built for lighter work than the "Special" and is of course smaller in size. The general mechanism arrangement is along similar lines to the larger Press, and it is also fitted with the open door type of mold box. The Standard Press has the same three distinct pressures as the "Special" Press and operates at the same number of revolutions as the larger Press, giving a capacity on average clay of approximately 2000 building brick per hour.

Approximate Dimensions: Length overall.....8' 5"  
Width overall.....8'  $1\frac{1}{2}$ "  
Height overall.....8'  $2\frac{5}{8}$ "

Approximate net shipping weight 24,000 lbs., gross 28,000 lbs.

The Standard Press can also be fitted with complete de-airing arrangements as per photograph.

### Dry Press Feeders

These Feeders are placed above a Dry Press feeding the prepared clay to the Press through two holes in the Feeder bottom, to which holes are attached two metal or canvas chutes, the bottom of which chutes enter the Press charger. This type of Feeder has a drag design agitator, and is driven either by flat belt or V-belt, or by direct connected vertical motor drive as shown below. (Fig. 122)

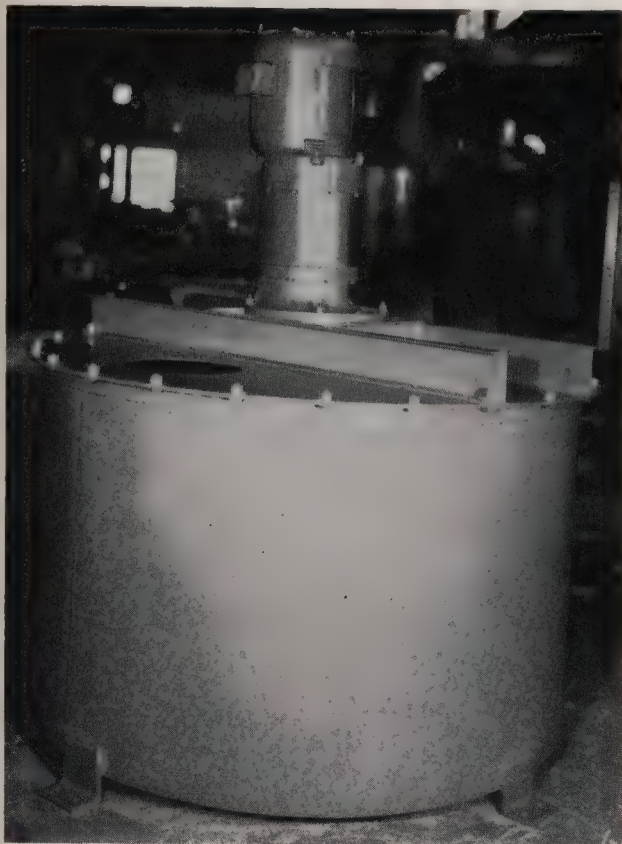


FIG. 122  
Motor Driven Press Feeder

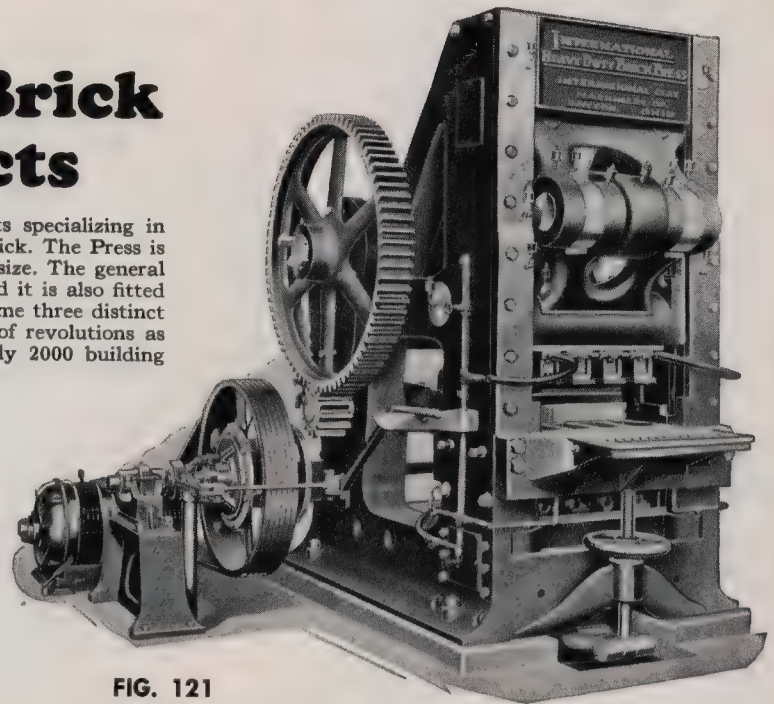


FIG. 121  
Standard Press

Each Feeder has a replaceable loose plate steel bottom, and can be fitted with a steam or water coil for further clay preparation if so desired.

#### Belt Drive:

Approximate net weight 1500 lbs.  
Approximate export wt., 2000 lbs.

#### Gear Motor Drive:

Approximate net weight, 2130 lbs.  
Approximate export wt., 3090 lbs.

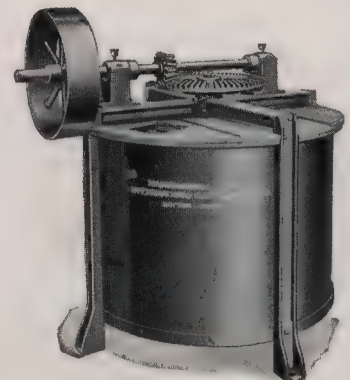


FIG. 122-A

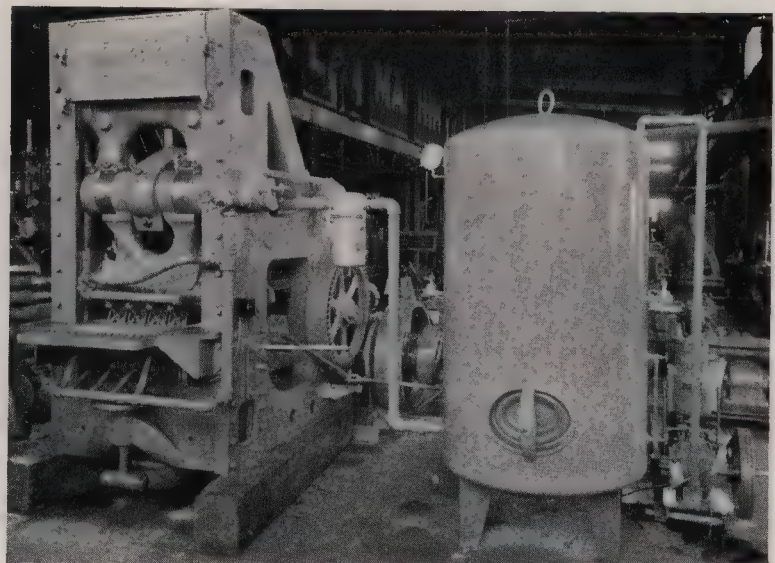


FIG. 123  
Showing De-Airing Equipment



# Auger Machines

## Combined Type---Not De-aired

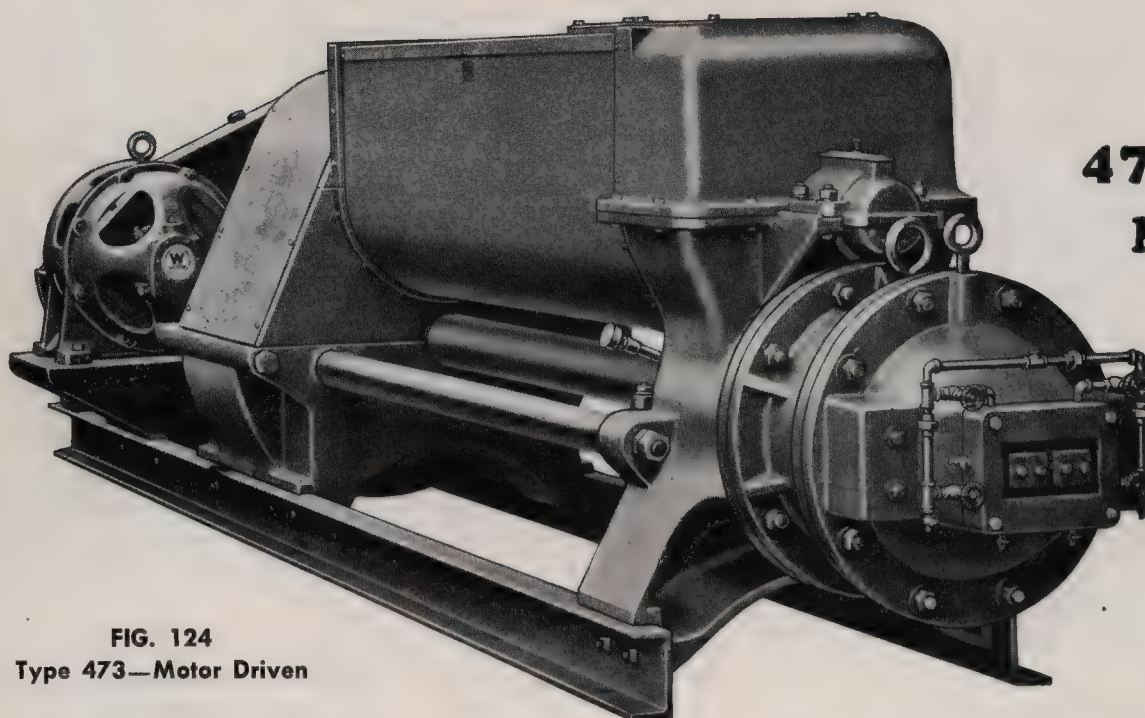


FIG. 124  
Type 473—Motor Driven

**Types  
473 and 470  
Machines  
Are  
Operating  
All Over  
the  
World**

Types 470 and 473 Combined Pugging and Extrusion Machines are built for medium capacities of brick, hollow tile, roofing tile and drainage tile. They are equipped with an 8 ft. pug mill 24 in. wide, using the insertable cleaver type of pug knife.

Both machines as a standard are equipped with a Timken bearing thrust—they are strongly built—have single gear drive; that is, a cut pinion operating on a large cut main gear. The pug mill is driven through an extra set of heavy tooth spur gears.

Both machines are particularly adaptable to motor drive through silent chain to motor, which motor sits on a base, which base is an integral part of the machine. (Note cut of 473). Fig. 124.

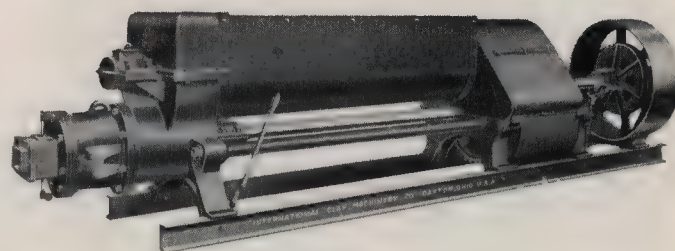


FIG. 125  
Type 470—Auger Machine and Pug Mill

The 473 is equipped with liners around the auger so that auger can be 16" straight throughout, or can be reduced to 12" at the tip if so desired.

Both machines are constructed in the same general manner, however, the 473 is larger in capacity.

### SPECIFICATIONS

Mch. No.	Approx. Capacity in Brick	Length Overall	Width Overall	Max. Height	Height to Center Auger	Height to Center Pulley	Auger Shaft	Pug Shaft	Drive Shaft	Cut Gear Face	Thrust	Pulley	Clutch	Pug Tub	Stand-and Auger	Pulley Speed	Approx. H.P.	Net Weight Approx.	Export Weight Approx.
473	50000	18'11 1/2"	6'1 1/2"	56"	23 1/4"	-----	5 1/4"	5"	3 3/8"	8"	Timken	42"x12"	Dodge	8'	16"	150	60	11500	14000
470	30000	18'5"	65 1/4"	56"	23 1/4"	-----	4"	5"	3 3/8"	8"	Timken	42"x12"	Dodge	8'	13 3/8"	150	40	10500	12000

NOTE: All capacities figured for 10 hr. operation on U. S. Standard Size Building Brick.



# PUG MILLS

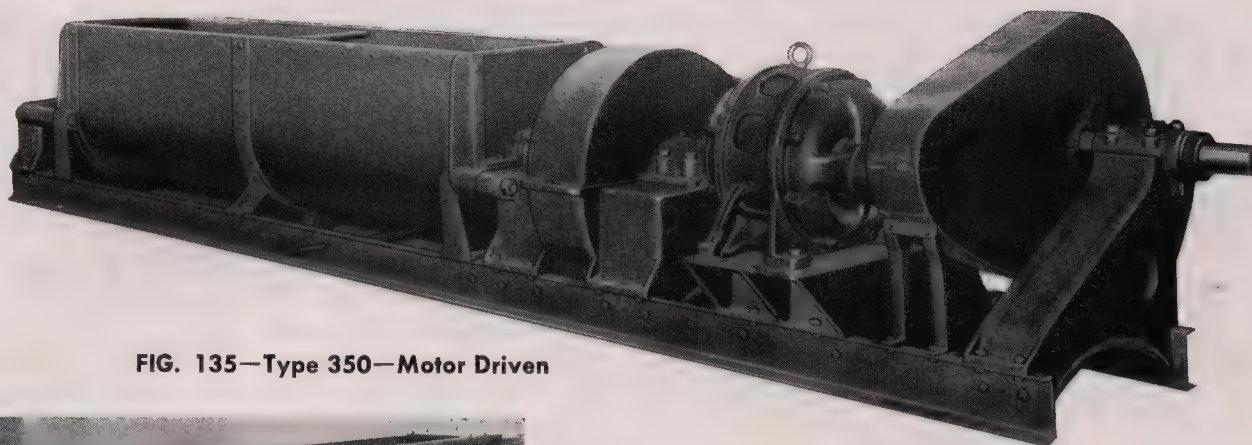


FIG. 135—Type 350—Motor Driven



FIG. 136—Type 360—Direct Motor Drive

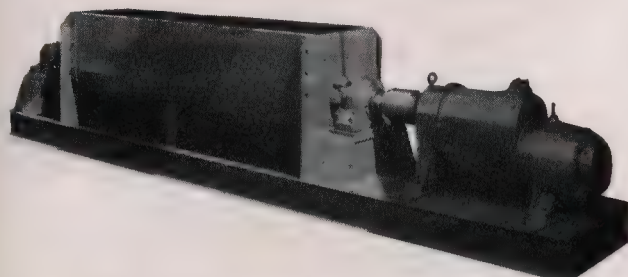


FIG. 137—Type 360 with Direct Gear Motor Drive



FIG. 138  
Type 361—Double Shaft Mill with Gear Reducer Drive

International can give you most anything in a pug mill that you might require.

**TYPE 350**—This is a single shaft Mill with 30" wide tub running from 8 foot to 16 foot in length of tub—a high capacity type of Mill fitted with a heavy shaft of the cleaver type of insertable knives and a Timken thrust bearing as a standard. It is particularly adaptable to motor drive, as shown in cut above.

**TYPE 360**—This is an all welded Mill with 24" wide tub 8 feet to 12 feet in tub length—single shaft type. It is generally motor driven either through a separate reducer and motor as shown, or through a gear motor as also shown in accompanying photograph. This Mill has also found its place in steel mill and cement mill work.

**TYPE 361**—This double shaft Pug Mill is generally driven through a gear reducer to motor, or by a gear motor and is completely roller bearing equipped. It is built as a standard with bottom end discharge and can be arranged with a steel top cover if desired. The pug tub is built in lengths of 8 ft. to 12 ft. and the Mill is entirely of welded construction.



FIG. 139  
Type 361—Double Shaft Pug Mill

## SPECIFICATIONS

No.	Length Tub	Width Tub	Length Overall	Width Overall	Height Overall	Size Pug Shaft	Size Drive Shaft	Face of Gears	No. of Knives	Thrust	Type of Drive	Pulley	Clutch	Pulley Speed	Approx. H.P.	Approx. Net Weight	Approx. Export Weight
350	14'	30"	25'6"	5'1"	4'4"	6 1/2"	3 11/16"	10"	60	Timken	Pulley or Motor	42x14	Dodge	150	40	11500	13000
350	12'	30"	23'6"	5'1"	4'4"	6 1/2"	3 11/16"	10"	52	Timken	Pulley or Motor	42x12	Dodge	150	30	11000	12500
350	10'	30"	21'6"	5'1"	4'4"	6 1/2"	3 11/16"	10"	44	Timken	Pulley or Motor	42x12	Dodge	150	20	10500	12000
360	8'	24 3/4"	16'11 1/2"	35"	34"	5 3/4"	----	----	----	Timken	Motor	----	----	----	15	7500	8700
360	10'	24 3/4"	18'11 1/2"	35"	34"	5 3/4"	----	----	41	Timken	Motor	----	----	----	20	8000	9250
361	8'	30 1/4"	16'2 1/4"	3'4 3/8"	2'7"	4 1/2"	----	----	62	Roller	Motor	----	Dodge	565	15	7000	8300
361	10'	30 1/4"	18'2 1/4"	3'4 3/8"	2'7"	4 1/2"	----	----	78	Roller	Motor	----	Dodge	565	20	7500	9000



# DRY PANS

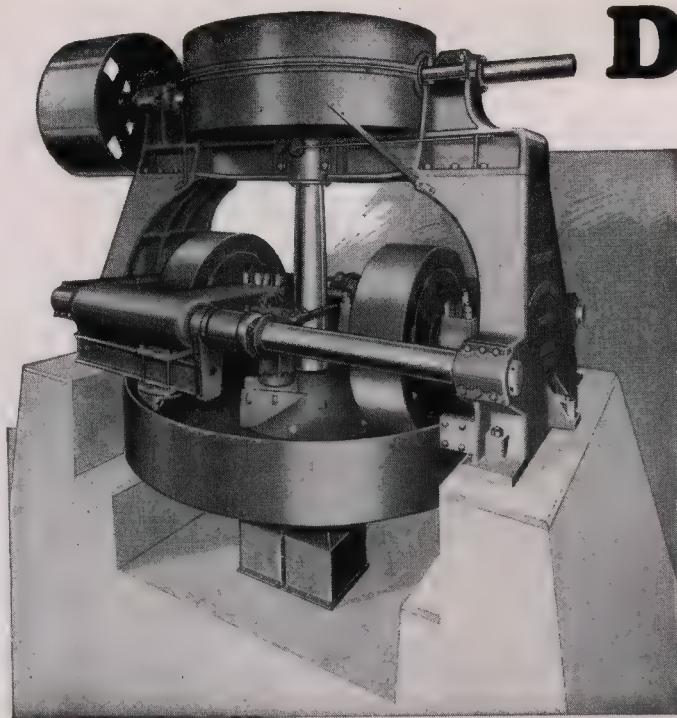


FIG. 126  
Types 101 and 102 Heavy Duty

A line of Pans complete in size and capacities to please the most exacting purchaser. At the top of the list are the mammoth Types 101 and 102 for the grinding of quartz and magnesite, these pans being particularly adaptable to steel mill work; at the bottom of the list the Type 150—5-foot Pan for grog grinding and experimental work.

All 10-foot and 9-foot Pans are of the low frame, high foundation type, while the 7-foot and 5-foot are of the high side frame, low foundation type. All 10-foot Pans have independent muller arrangement as do Types 102 and 100 9-foot Pans—remainder are of the yoke type of muller.

Cross rails are of the three bearing type—two contiguous bearings for the driving pulley or chain gear.

Mullers are set closer to the center shaft than most Pans, thus giving greater area of screening surface.

All steps in the larger Pans are Timken, while in the standard and lighter Pans they are radial bronze.

All muller tires, wearing plates, and screen plates are made of a very hard, long wear, manganese chromium nickel iron.

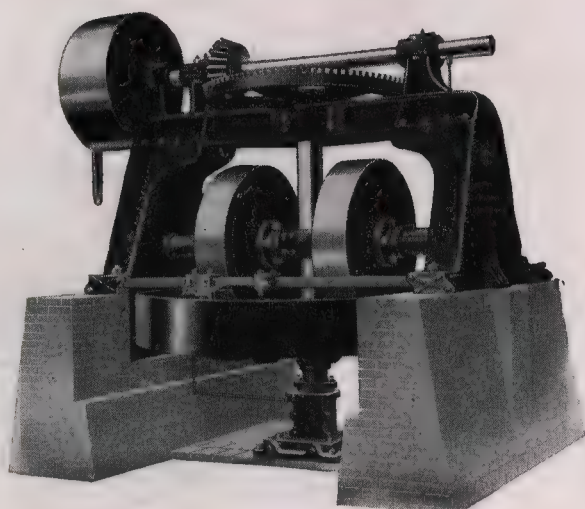


FIG. 127  
Type 115—9' Standard Pan

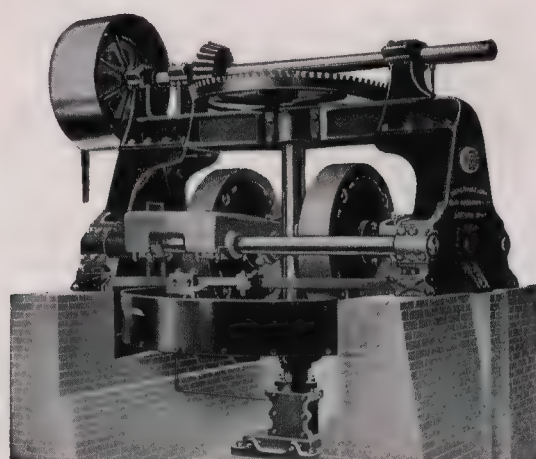


FIG. 128  
Type 100—9' H. D. Pan

## SPECIFICATIONS

Size	No.	Type	Muller Arrangement	Length Overall	Width Overall	Height Overall	Main Shaft	Driving Shaft	Yoke Shaft	Size Gear	Stand-and Mullers	Gear Ratio	Stand-and Step	Clutch	Pulley	RPM	Approx. H.P.	Approx. Net Weight	Approx. Export. Weight
10'	101	Heavy Duty	Independent	15'6"	10'2"	13'8"	8"	4"	5"	67 $\frac{3}{8}$ " Diam.	54"x16"	5 to 1	Timken	Dodge or Equiv.	Motor Drive	150	75	57500	62500
10'	105	Standard	Independent	15'6"	10'2"	13'8"	8"	4"	5"	67 $\frac{3}{8}$ " Diam.	52"x14"	5 to 1	Radial Bronze	Dodge or Equiv.	48"x18"	150	50	46000	50000
9'	102	Heavy Duty	Independent	15'6"	10'2"	13'8"	8"	4"	5"	67 $\frac{3}{8}$ " Diam.	52"x16"	5 to 1	Timken	Dodge or Equiv.	Motor Drive	150	75	56000	61000
9'	100	Heavy Duty	Independent	15'6"	9'3"	12'3"	6 $\frac{1}{4}$ "	3 $\frac{15}{16}$ "	4"	67 $\frac{3}{8}$ " Diam.	52"x12"	5 to 1	Radial Bronze	Dodge or Equiv.	48"x16"	150	40	36000	40000
9'	115	Standard	Yoke	15'6"	9'3"	12'3"	6 $\frac{1}{4}$ "	3 $\frac{15}{16}$ "	-----	67 $\frac{3}{8}$ " Diam.	50"x10"	5 to 1	Radial Bronze	Dodge or Equiv.	48"x16"	150	30 to 40	32000	35250
7'	145	Standard	Yoke	7'	12'6"	9'9"	4 $\frac{3}{4}$ "	2 $\frac{15}{16}$ "	-----	6" Face	38"x 7"	3.5 to 1	Bronze	Dodge or Equiv.	42"x12"	125	20 to 25	16000	18150
5'	150	Standard	Yoke	5'	9'	8'7"	3 $\frac{15}{16}$ "	2 $\frac{1}{8}$ "	-----	5 $\frac{1}{2}$ " Face	34"x5.5"	4 to 1	Bronze	Dodge or Equiv.	36"x10"	132	10 to 15	10500	12000

NOTE—All pans can be arranged for motor drive through gears, Silent chain or V-belt.



# WET PANS

International Wet Pans cover the complete range of capacities desired. The Type 159 Special is the heaviest and strongest 9-foot Pan that we know of built. It is mainly made of cast steel and alloy, and is particularly built for the mixing and grinding of silica, carborundum, chrome, manganese, dead burned dolomite, etc.

The Type 160—9-foot and the Type 175—8-foot. Low Frame Pans are those most widely used in heavy duty work. The 7-foot and the 5-foot Pans are of the high frame type, while all larger Pans are of the low frame type.

Note that the Type 159 is of independent muller construction, while all other Pans are of the yoke muller type.

All International Wet Pans are exceedingly well built, and have muller tires and tracks of hard, long wearing alloy.

All 8-foot and 9-foot Pans are fitted as a standard with Timken or equivalent step bearing, while the 5-foot and the 7-foot sizes have as standard, bronze thrusts.

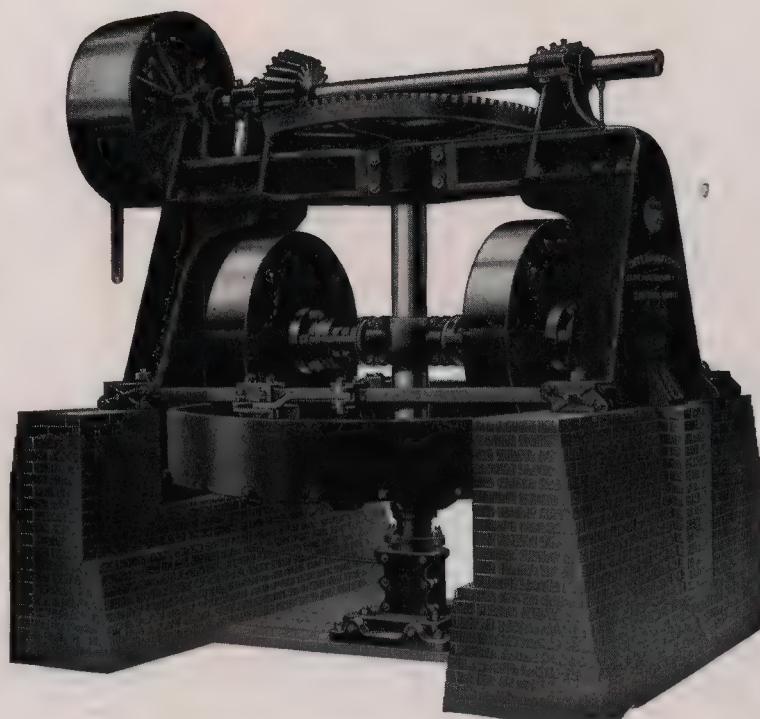


FIG. 130—Type 160—9' Wet Pan

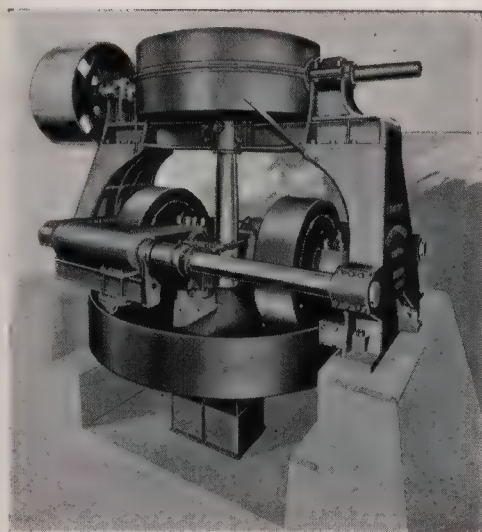


FIG. 129—Type 159—Wet Pan

All Pans are particularly fitted for motor drive through silent chain or V-belt to motor. Not only are these Pans built for the mixing of clay and refractories for clay plants, but are also found largely in steel mills throughout the world.

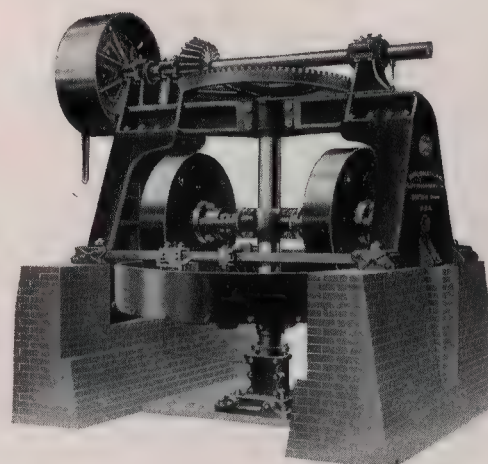


FIG. 131  
Type 180—7' Wet Pan

## SPECIFICATIONS

Size	No.	Type	Muller Arrange- ment	Length Overall	Width Overall	Height Overall	Main Shaft	Driv- ing Shaft	Yoke Shaft	Gear Face	Stand- ard Mullers	Gear Ratio	Stand- ard Step	Clutch	Pulley	R. P. M.	Approx. H.P.	Approx. Net Weight	Approx. Export Weight
9'	159 Special	Heavy Duty	Ind. Muller	15'6"	9'6"	12'3"	8"	4"	5"	7 1/2"	52"x15"	5 to 1	Timken	Dodge	48x18	150	50	58000	62000
9'	160	Heavy Duty	Yoke	15'6"	9'6"	12'3"	6 1/4"	4"	--	7 1/2"	50"x10"	5 to 1	Radial Bronze	Dodge	48x16	150	35	35000	38000
8'	175	Heavy Duty	Yoke	15'6"	9'6"	12'3"	6 1/4"	3 15/16"	--	7 1/2"	48"x6 1/4"	5 to 1	Radial Bronze	Dodge	48x16	150	30	30000	33000
7'	180	Stand- ard	Yoke	7'	12'6"	9'9"	4 3/4"	2 15/16"	--	6"	40"x5"	3.5 to 1	Bronze	Dodge	42x12	125	20 to 25	16000	18150
5'	185	Stand- ard	Yoke	5'	9'	8'7"	3 15/16"	2 7/16"	--	5 1/2"	34"x5 1/2"	4 to 1	Bronze	Dodge	36x10	132	15	10500	12000

NOTE—All pans can be arranged for motor drive through gears, silent chain or V-belt.



# CUTTING TABLES

## Type 530 (Semi-Automatic)

The 20,000 to 40,000 face brick manufacturer requires just as straight a cut as he who is large enough in capacity to use an automatic machine for the cutting of his face brick.

Type 530 Semi-automatic Cutter is designed to especially take care of small and medium capacities of fine wire cut face brick.

The construction of the machine is very solid, the diameter of the reel being as small as it can consistently be made. This permits the use of short wires, which gives a maximum clean cut to the brick.

Power is transmitted to the cutter through a flanged pulley, which contains a cone friction. The cut is made by power under the direction of the operator of the cutter.

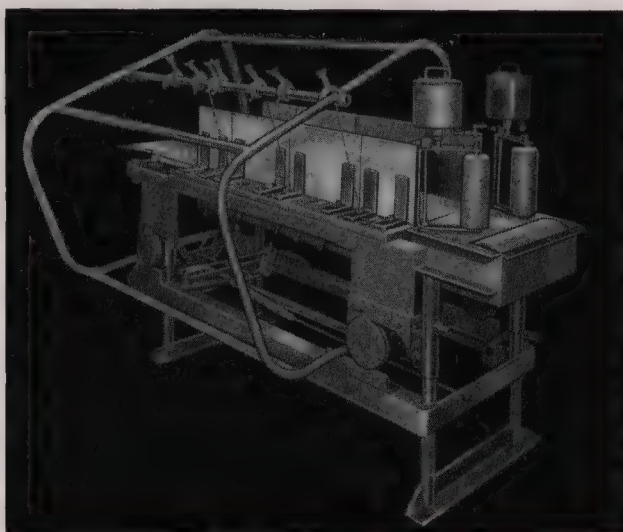
The platens on the machine are set well forward of the axis of the reel, this giving a strictly diagonal cut. Notice furthermore, that the foot lever extends the entire length of the machine, which facilitates the operator in maximum capacity work.

### SPECIFICATIONS

Height from floor to top of platen, 2'6". Ten-foot Off-carrier.  
Driving pulley, 24" diameter, 6" face. Total length overall, 6'4"  
Countershaft pulley, 12" face. Total width overall, 5'  
R. P. M., 40 to 45. Total height overall, 6'.  
Approximate weight, Net 3500 lbs. Export, 4650 lbs.

## Type 570 Hand Cutter

This Hand Cutter is of the reciprocating type—that is, one cut is made by pushing the reel away from the operator, and the next cut by pulling the reel toward the operator, etc. The reel is pivoted as low as possible in order to make a cut with the greatest possible acute angle. The Cutter is of welded steel construction and operates with the greatest of ease, and so arranged that its height can be set at will.



It can be used with an off-carrier or operated without one, as customer may desire. It can also cut a variety of products by putting in platens—brick, roofing tile, floor tile and drainage tile.

Approximate net weight (no off-carrier) 1000 lbs.

Approximate gross weight (no off-carrier) 1500 lbs.



Type 530

## Types 550—555 Board Delivery



Two types of board delivery tables which deliver the cut ware to a pallet. Type 555 shown in cut is similar to the Type 550 with the exception that the Type 550 is built with wires on an angle to make a shear cut for face brick. When Type 555 is arranged to cut brick up to 14" long, it is called Type 556.

### SPECIFICATIONS

	Type 550	Type 555
Length over all	5'6"	6'
Width	4' (Roman 4'8")	4'2"
Height to Top Platen	2'3"	2'1"
Capacity per Hour	1500 to 3000	1500 to 3000
Approximate Net Weight	1000	850
Approximate Export Weight	1350	1300

Note: Capacity is figured in U. S. Building Brick.



# DISINTEGRATORS

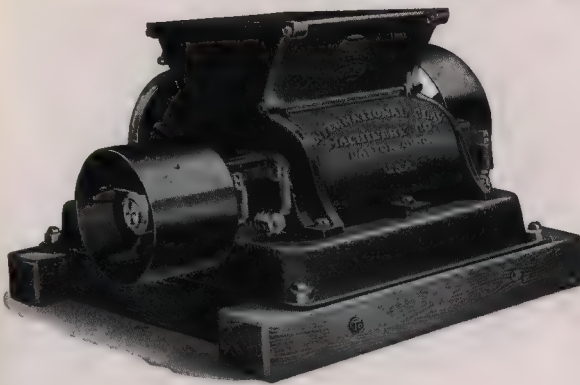


FIG. 132—Disintegrator

International Disintegrators are made in three standard sizes to cover all standard capacities in the working of soft alluvial clays. Each has two rolls—one the large diameter operating at low speed—the other the small diameter roll operating at relatively high speeds.

The smaller or cutting roll is fitted with renewable and reversible knives. The larger roll is smooth on the surface, this larger roll being chilled or heat treated for long wear. Note that all types have a one-piece heavy base, large shafts, and oil reservoir bearings.

## SPECIFICATIONS

Type No.	Length Overall	Width Overall	Height Overall	Cutting Roll	Feed Roll	Shafts	Feed Roll Pulley	Cutting Roll Pulley	Fly-wheel	R.P.M. Cutting Roll	R.P.M. Feed Roll	Approx. Capacity Bldg. Brick	Approx. Net Weight	Approx. Export Weight	Approx. H.P.
210	4'	4'8"	3'	12"D 14"F	18"D 14"F	2 <sup>15</sup> / <sub>16</sub>	24"x 6"	12"x10"	----	800 to 1000	125 to 150	1500 to 4000	2200	2605	15
205	5'	5'3"	3'	14"D 18"F	24"D 18"F	2 <sup>15</sup> / <sub>16</sub>	24"x 8"	14"x10"	----	800 to 900	125 to 150	4000 to 6000	3300	3500	20 to 25
200	6'	8'6"	3'8"	16"D 25"F	28"D 25"F	4 <sup>1</sup> / <sub>16</sub>	30"x10"	18"x14"	Yes	700 to 800	100 to 125	6000 to 15000	6000	7000	30 to 50

NOTE—Types 210 and 205 can be fitted with flywheel at extra price.

# CRUSHERS

International Roll Crushers are generally used to further crush to a fineness material that has just passed through a Disintegrator.

They are made in various sizes for various finenesses of finished material. All rolls are either made of heat treated material or have chilled hard surfaces.

Types 215—240—225 have springs on one shaft to allow the passage of metal.

Type 225—Equal Roll, we believe to be the finest fine grinding crusher ever made, it having, you will note, 30" diameter rolls which are ground to a perfect circle. For the pulverization of lime, pebbles, soft sand, stones, and shales it has no peer.

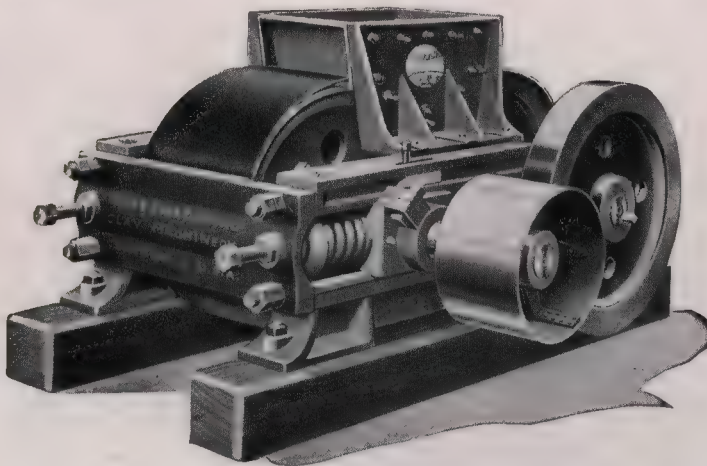


FIG. 133—Type 225—Equal Roll Crusher

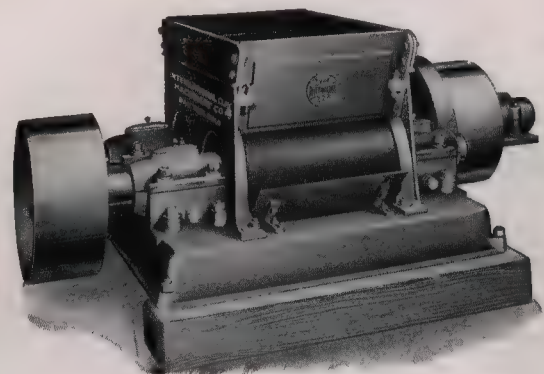


FIG. 134—Type 220

## SPECIFICATIONS

Type No.	Length	Width	Height	Roll Size	Size Pulleys	Shafts	R.P.M.	Approx. Capacity Bldg. Brick	Approx. H.P.	Approx. Net Weight	Approx. Export Weight
220	7'6"	4'1"	2'6"	16"D 24"F	24"x10"	3 <sup>15</sup> / <sub>16</sub> "	400 to 600	2500 to 4000	20	4200	4700
240	8'4"	4'5"	3'2"	24"D 18"F	24"x 8"	3 <sup>15</sup> / <sub>16</sub> "	250 to 300	2500 to 4000	20	6100	6700
215	8'4"	5'	3'2"	24"D 24"F	30"x10"	3 <sup>15</sup> / <sub>16</sub> "	250 to 300	4000 to 7500	30	7000	7800
225 Equal Roll	7'	6'	3'6"	30"D 14"F	16"x10" 18"x14"	3 <sup>15</sup> / <sub>16</sub> "	400 and 500	4000 to 8000	30 to 40	8500	9200

NOTE—Capacities is in U. S. size Building Brick per hour operating on average clay.



# REPRESESSES

## Type 700 Power Press

Type 700 Repress has been designed to repress paving block, face brick, fire brick, and refractory shapes.

It is a two-shaft machine, thus simplifying both construction and maintenance.

The thickness of the brick and the pressure on the brick can be adjusted quicker on a Type 700 Press than on any other machine on the market.

Notice the solid cast iron base; this not only gives rigidity to the machine, but encloses all working parts in a dust-proof case.

Babbitting has been simplified by the use of special split brass bushings for the crankshaft bearings, while both shafts are heavy and the bearings are ample.

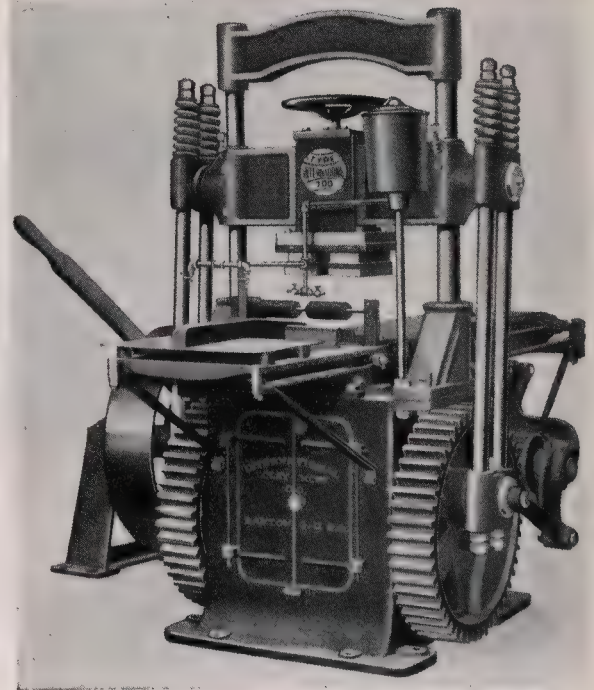
The machine is regularly furnished with a double steel lined, steam heated die. For large sized brick and special shapes single dies are furnished.

Need we say more than that one large brick manufacturer has thirteen of these presses in one plant.

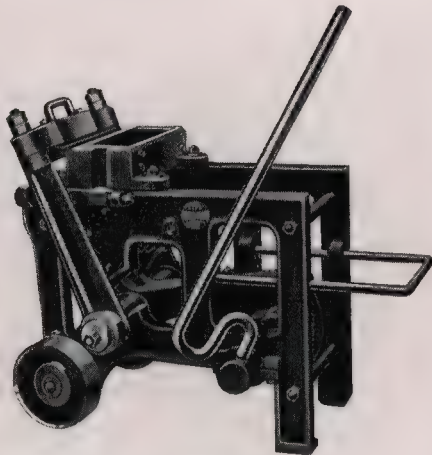
### SPECIFICATIONS

Length overall, 8'6".  
Width overall, 6'6".  
Height overall, 7'.  
Base, 35" x 40".

Maximum double die, 6½" x 18" x 5".  
Maximum single die, 14" x 18" x 5".  
Height from floor to top of mold box, 3'5".  
Pulley, 36" x 8"; R. P. M., 70.  
Capacity, 1,800 to 2,200 standard brick per hour.  
Approximate shipping weight, 7,000 lbs.  
Approximate export weight, 7,500 lbs.



# Hand Represses



Type 750

Types 710—720—730 are the only hand presses on the market using the powerful toggle motion so prevalent in dry presses. With the toggle motion an enormous pressure can be applied to a brick or tile by the average man. These presses are indispensable in the manufacture of fire brick and other fire clay shapes. Types 720 and 730 (particularly the latter) are those commonly used on fire brick plants.

Type 750 is the conventional type of fire brick hand press operating with a lever motion. The thickness of brick is varied by the adjustment of the lower plunger, while in the toggle motion presses, this variation is obtained through the screw operating the upper plunger.

### SPECIFICATIONS

	Type 710	Type 720	Type 730	Type 750
Length.....	7'6"	7'6"	9'10"	4'6"
Width.....	20"	20"	20"	2'0"
Height.....	6'	6'	8'	3'2"
Largest Die.....	12x12x5¼	12x12x5¼	12x16x7½	10x5x3½
Net Weight.....	1000	1200	1500	800
Export Weight (Approximate).....	1205	1350	2000	1000
Approximate Capacity per Day (10 hr.).....	1000	1200	1500	1200



Type 730



# Roofing Tile Presses

## Type 800

International Type 800 Roofing Tile Pentagon Press is without question the most substantial, heaviest and best built power roofing tile press on the market.

The frames are massive, its base is solid cast iron, its shafting is heavy.

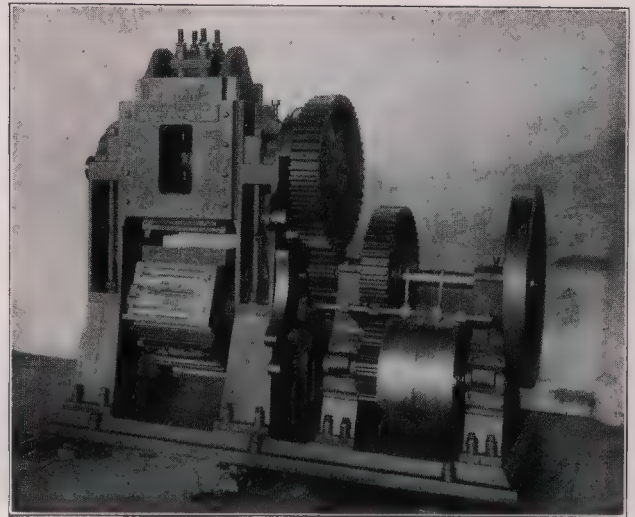
The press motion is accurately timed by means of an escapement movement operating the Pentagon.

The machine is fitted with a tight and loose driving pulley or our new friction clutch pulley.

The Pentagon is cast hollow for the application of steam, sometimes necessary with bad clays.

The machine is furnished with either plaster, brass, steel or composition metal dies, in accordance with the requirements. Price of press varies with the type of die used.

The entire machine is put together with extremely good workmanship, the finished machine operating in a most mechanical manner.



Type 800—Photo

### SPECIFICATIONS

Length overall, 3'2".

Width overall, 8'6".

Height overall, 7'.

Size of driving pulley, 23" diameter by 7" face.

R. P. M., 125 to 200.

Eight revolutions of pulley to one impression.

Approximate Shipping Weight, 12,000 lbs.

Approximate Export Weight, 15,000 lbs.

## TYPE 850

### Hand Press



Type 850

This is the only Hand Roofing Tile Press using the powerful toggle motion.

The toggles exert heavy pressure on the clay, assuring square corners and a filled out tile.

Three formers, one fixed upper and two removable lower, are required for maximum capacity work.

The bottom former dovetails with bottom plunger. After a tile is pressed, the former is slid off on to a dovetailed pallet through the operation of pushing a new former on to the die. The tile on the swinging pallet is then dumped and the operation continues.

Type 850 Hand Press is especially valuable in the manufacture of special roofing tile shapes.

### SPECIFICATIONS

Length overall, 4'.

Width overall, 4'.

Height overall, 5'9".

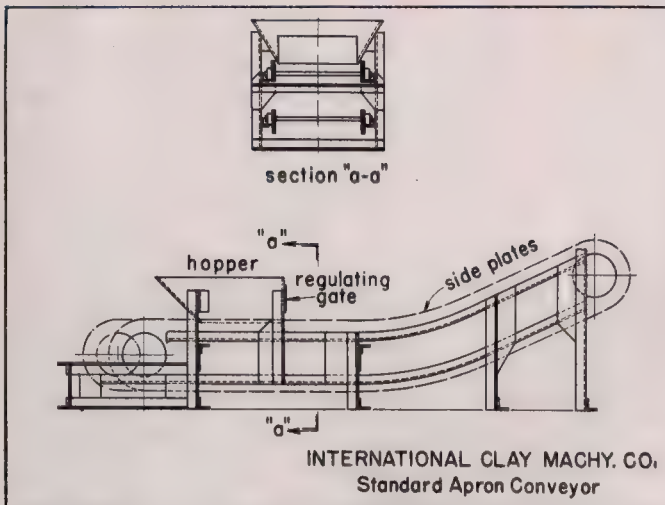
Approximate weight, 2000 lbs.

Approximate export weight, 2500 lbs.



# FEEDERS

## Apron Feeders



These Feeders are used for two purposes: First, to feed raw, wet clay of the alluvial type from the bank or storage at a steady tonnage to Disintegrators or Crushers.

Second, to feed shale or fireclay at a uniform rate to the Dry Pans or Wet Pans. These Feeders are arranged with hoppers and regulating gates as well as side boards. They can be installed on the level, inclined, or partially horizontal and partially on the incline at a 25 degree angle. They can be designed with flat belt or sprocket drive, or arranged with gear motor drive as customer desires.

## Disc Feeders

The ordinary clay feeder of the disc type, at times gives trouble with damp clay, the clay tending to bridge above the hopper.

International Clay Feeders, Types 875 and 880, are so designed that the upright shaft extends to the top of the bin above the feeder.

This upright shaft is fitted with knives above the hopper, which knives revolve with the feeder, working the clay down to the feeder hopper, doing away with the tendency to bridge.

International Feeders are built in heavy duty proportions, the feeder being furnished in three sizes of disc plates; Type 870—42" disc, Type 875 with disc 48" in diameter and Type 880 with a 60" disc.

Approximate Shipping Weight, 1150—1500—2000 lbs.

Approximate Export Weight, 1200—1650—2200 lbs.

### SPECIFICATIONS (Belt or Sprocket Driven)

Type	870	875	880
Cylinder	24" Diam. 21" High	30" Diam. 21" High	30" Diam. 21" High
Disc Diameter	42"	48"	60"
Shafts—Drive	1 5/16"	2 1/16"	2 1/16"
Vertical	2 1/16"	2 1/16"	2 1/16"
R. P. M.—Drive Shaft	40 to 50	30 to 40	28 to 35

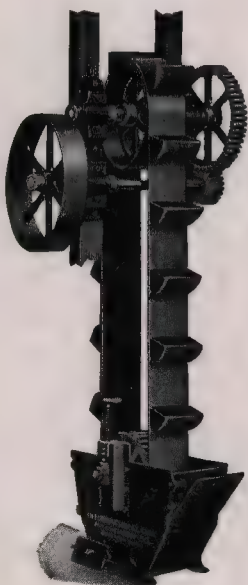


FIG. 144



FIG. 145

## Elevators and Conveyors

International elevators are used for elevating clay from a dry pan or bin and are either of the belt drive, as shown in the cut, or where specified, of the chain type.

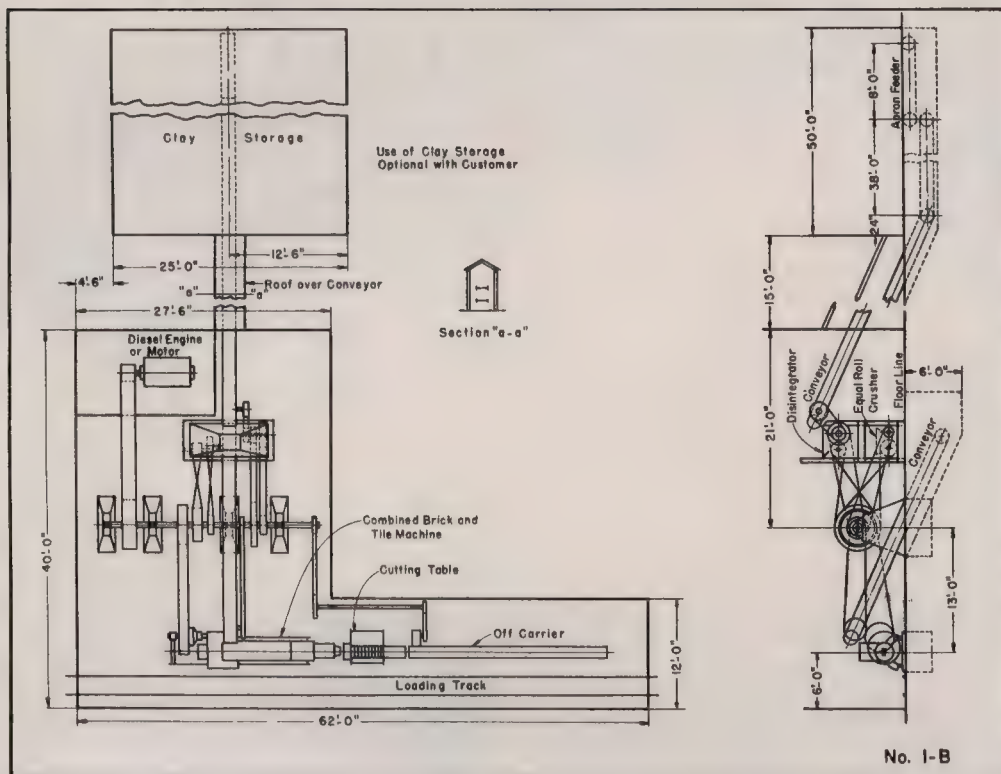
They are made in various sizes to take the capacity of various dry pans. Those with buckets 8" x 5 1/2" are for the 5-foot and 7-foot pans; 10" x 6" for the 7-foot and 8-foot pans; 12" x 6" and 14" x 6" for 9-foot pans; and 14" x 6" and 16" x 7" for 10-foot pans. Ask for definite specifications.

When it comes to conveyors, these can be furnished in belt widths from 12" up to 30". We furnish the conveyor complete with structural steel mounting, shipping same in sections.

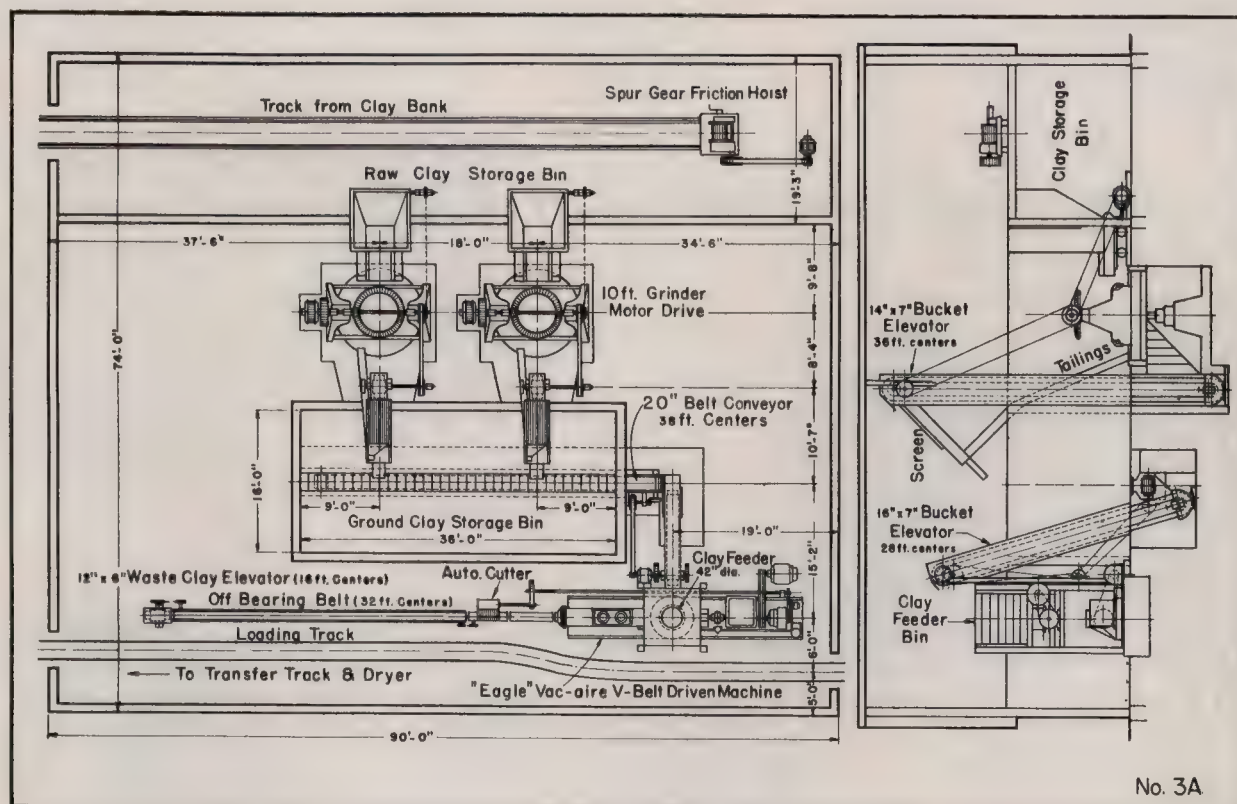
Both Elevators and Conveyors are arranged for either pulley, sprocket, or motor drive, as customer may desire.



# PLANT LAYOUTS



**Machinery Arrangement for Manufacture of Brick and Tile from Alluvial Surface Clay**



**Machinery Arrangement for Shale or Fire Clay**





FIG. 146

# Trucks for Plant and Yard

This we believe to be the best fifth wheel truck ever offered a clay plant.

All steel frame—welded throughout—wood or steel deck, as customer desires—front handle or pole swings up when not in use—rear hitch or coupler cast steel—rubber tired wheels—Hyatt bearings—removable end racks—side racks, if desired—Alemite lubrication.

## SPECIFICATIONS

Truck No.	Platform Size	Height to Top Platform	Rubber Tired Wheels	Capacity	Height of Racks from Top of Deck	Approx. Shipping Weight	Approx. Export Weight
75	10'x3'6"	30"	24x3 1/2"	5000	36"	1100	1400
75-A	10'x3'6"	26"	20x3"	4000	33"	1000	1300
75-B	10'x3'6"	22"	16x4"	5200	33"	1000	1300

NOTE—Capacity of each truck can be increased 50% by using dual or four wheels in rear instead of standard two.

## TRAILER TRUCKS

### Fifth Wheel Type

These rubber tired trailer trucks are built especially for clay plant service. Steel frame welded throughout—steel or oak deck—ball bearing fifth wheel—rubber tires—rear coupler—removable end racks.

## SIZES AND SPECIFICATIONS

Truck No.	Platform Size	Height to Platform	Rubber Tired Wheel Size	Height Rack Over Platform	Bearing	Capacity lbs.	Approx. Shipping Weight	Approx. Export Weight
C-36	3'x6'	16"	12x3 1/2"	32"	Hyatt	4000	635	750
C-38	3'x8'	16"	12x4"	32"	Hyatt	5000	690	800
C-48	4'x8'	20"	16x4"	32"	Hyatt	5200	800	925

NOTE—16" x 4" rubber tired wheels can be used on C-36 and C-38 trucks at extra price.

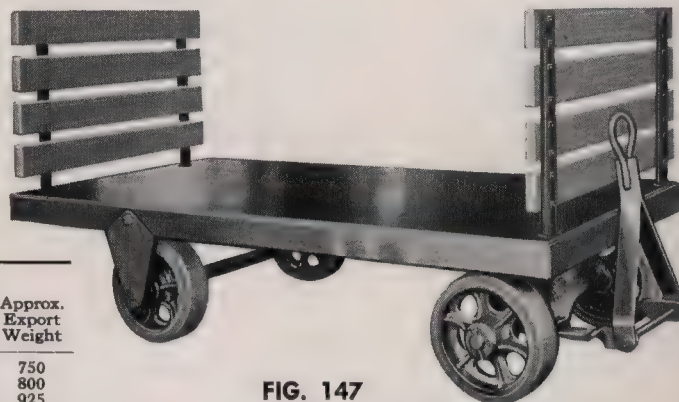


FIG. 147

## PLATFORM—TRUCKS—Type D (Steel or Wood Tops)

A light weight, yet very strong, good capacity Truck for all around use.

PLATFORM—All steel construction, well reinforced.

RUNNING GEAR—Two swivel casters and two larger stationary wheels, either plain or rubber tired. Casters are of the ball bearing type; they don't wobble.

## SPECIFICATIONS

Truck No.	Platform Size	Rear Wheels and Casters	Pounds Capacity Iron Wheels	Weight with One Rack
D2-B	24"x48"	8" and 4"	2000	170
D2 1/2-B	24"x60"	8" and 4"	2000	180
D6-F	30"x60"	12" and 6"	2700	240
D7-G	30"x72"	12" and 6"	2700	250
D7 1/2-G	30"x84"	12" and 6"	2700	260
D9-K	30"x60"	16" and 8"	4000	295
D10-J	30"x72"	16" and 8"	4000	310
D10 1/2-J	30"x84"	16" and 8"	4000	320
D11-H	36"x72"	16" and 8"	4000	320
D11 1/2-H	36"x84"	16" and 8"	4000	340

AXLES—SAE 1045 steel ground and polished.

RACKS—Heavy 1" pipe with 3/4" cross pipe all welded into a single unit, and held to truck by well designed gusset plate.

LUBRICATION—Alemite.

FINISH—Black or green with red wheels.

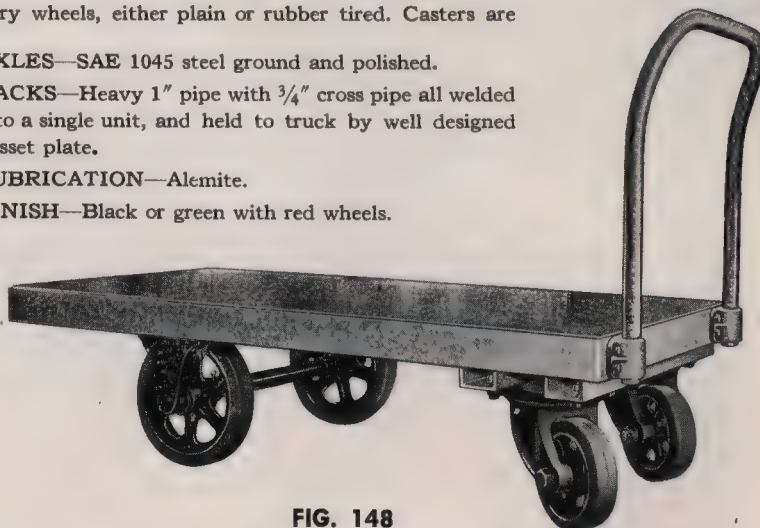


FIG. 148



# BRICK BARROWS

## All Steel—Rubber Tired



FIG. 152

An all steel electrically welded Barrow that will last—light in weight—small maintenance cost—wheels either 16"x4" pneumatic, or 18"x2 1/2" vulcanized on rubber tired—20"x4" pneumatic at an extra cost.

Spring balance, Hyatt bearings, axle 1 1/4" 1045 SAE turned and polished steel.

Approximate weight 16"x4" —4-ply pneumatic 100 lbs.

Approximate weight 20"x4" —4-ply pneumatic 110 lbs.

Approximate weight 18"x2 1/2"—vulcanized on 110 lbs.

### Turn Tables

#### Type 196

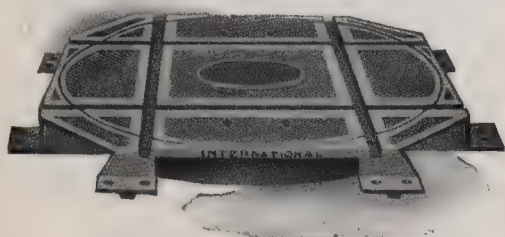


FIG. 153

Type 196 Turntables are of the cast iron or heavy plate type, operating on a ball race. They are machined very accurate, hence are used throughout the world in the turning of kiln cars where jar injures the ware.

#### SPECIFICATIONS

Diameter of Top	Capacity in Tons	Gauge Standard	Track Space	Approx. Net Weight	Approx. Export Weight
4'	4	24"	49 1/4"	1000 lbs.	1400 lbs.
5'	6	24"	61 1/2"	1800 lbs.	2150 lbs.
6'	7	24"	73 1/2"	2200 lbs.	2600 lbs.
6' Extra Heavy	Special	Special	-----	5000 lbs.	6000 lbs.
8' Very Heavy	Special	Special	-----	7500 lbs.	8800 lbs.

NOTE—Tracks can be single or cross—customer to specify.

We should know track gauge, wheel base and diameter of car wheel.

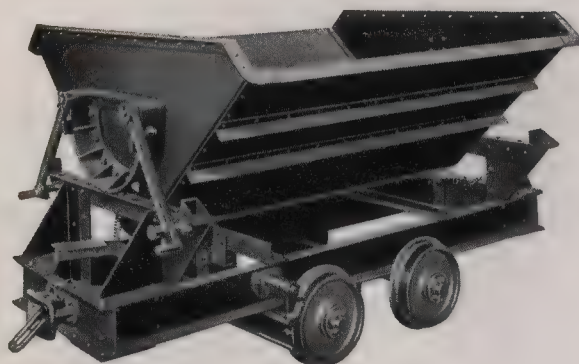


FIG. 154

Type 55—Showing Brake

#### SPECIFICATIONS

TYPE 55	TYPE 60
1 yd. approx. wt., net 1100 lbs.	1 1/2 yd. approx. wt., net 2000 lbs.
1 1/2 yd. approx. wt., net 1500 lbs.	2 yd. approx. wt., net 2200 lbs.
2 yd. approx. wt., net 1900 lbs.	3 yd. approx. wt., net 3000 lbs.

NOTE—Cars can be furnished with spring bumpers or spring bearings; also with brakes if desired.

NOTE—For Export Wt. add approximately 25%.

### Dump Cars

International builds two types of cars—Type 55 for hand loading and Type 60 Heavy Duty for steam shovel loading.

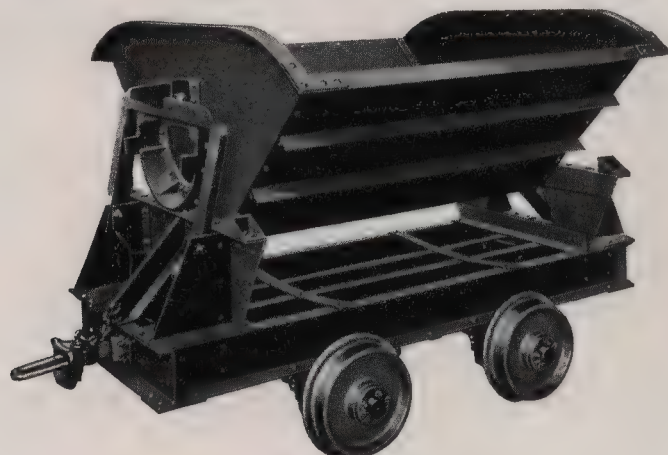


FIG. 140

Type 60 (Heavy Duty)



# ELECTRIC TRANSFERS

## Dryer Transfers

A new type of electric transfer car, motor driven through a gear reduction, the main shaft of the gear reducer being the axle of the car. This does away with the back lash and wear of chains and sprockets so universally used on other electric transfers. This is the simplest and the most positive drive ever used.

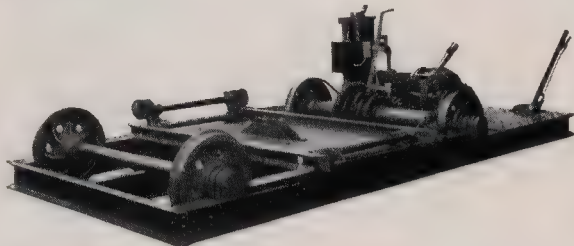


FIG. 149—Transfer with Car Puller

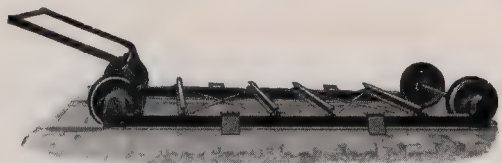
### SPECIFICATIONS

Type No.	No. of Tracks	Axles	Wheels	Standard Gauges	Top Lower to Top Upper Rail	Motor H.P.	Top of Lower Rail to Top Trolley	Approximate Net Weight	Approximate Export Weight
195	Triple	3 1/2"	18" to 20"	48" Upper 24" Lower	6 3/4"	7 1/2	9'6"	5900	7500
196	Double	3"	18"	48" Upper 24" Lower	6 3/4"	5	9'6"	5500	7000
197	Single	3"	18"	48" Upper 24" Lower	6 3/4"	5	9'6"	5000	6500

NOTE—Each of above transfers can be fitted with canopy at extra cost.

## Kiln Transfers

We specialize in kiln car electric transfers, particularly with kiln car puller mechanism to pull the kiln cars on the electric transfer. (Note accompanying cut.) These cars are made for either overhead trolley or third rail drive. We have a car to meet your requirements—no matter how small or large.



Type 193



Type 194

## Elevating and Lowering Cars

International Elevating and Lowering Cars will hold from 400 to 500 brick and weigh approximately 800 lbs. Export weight, approximately 1100 lbs. With this car is used Type 194 Transfer Car, weighing approximately 750 lbs., and usually a pallet turntable and one or more pallet rests, all of which make up this system of drying. This system effects considerable saving over trucks and common pallets.



FIG. 150



FIG. 151

## TRANSFER CARS (Hand)

Types 193 and 194 are standard for dryer work. They can be furnished with or without handle and brake. We also furnish all types of kiln cars. Ask for details.

### SPECIFICATIONS

Upper Gauge (Standard) 24".  
 Lower Gauge (Standard) 45".  
 Distance from top of lower to top of upper track, 6 1/2" (Standard).  
 Approximate Net Weight, Type 194— 750 lbs. Export 1200 lbs.  
 Approximate Net Weight, Type 193—1200 lbs. Export 1800 lbs.

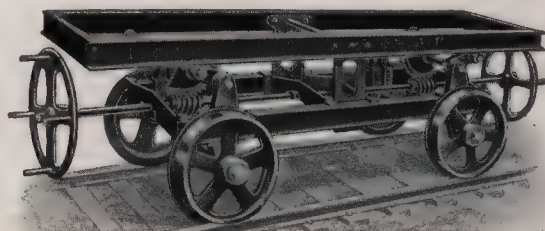


FIG. 143



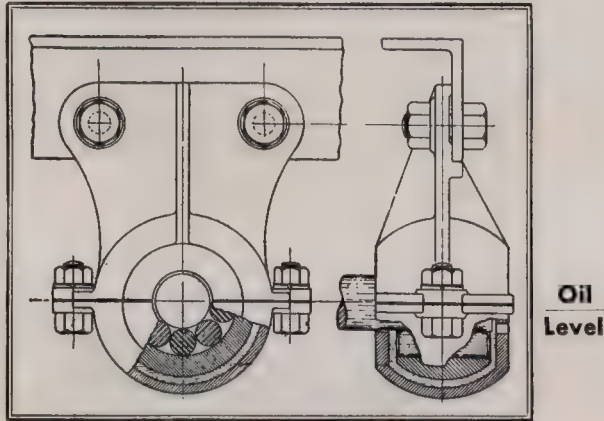
# DRYER CARS

International Cars we firmly believe are the best built and most easily operated cars on the market.

Why?

The bearing used on all International Cars is of flexible variety. It consists of strong outer casing, made in two pieces, the upper half having a ball joint seat, which receives a floating ball joint bushing. This bushing is accurately bored on the inside for roller bearings made of steel, which run on a turned axle. The lower part, or cap, acts as an oil reservoir.

Not only does this make International Cars run easier, but the universal bearing has allowed the track to be from 4 to 6 inches lower on one side than the other without causing bearing to bind.



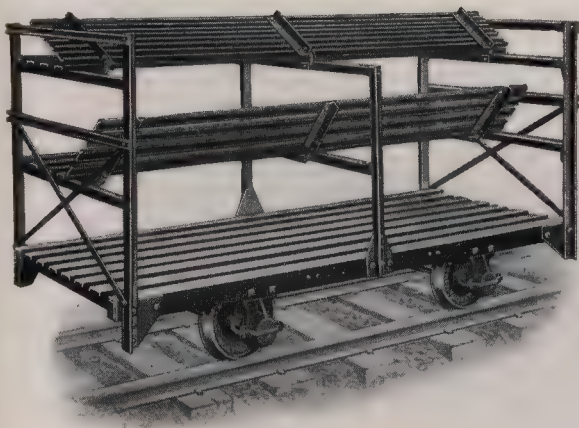
**FLEXIBLE OIL RESERVOIR BEARINGS**

**CAST STEEL WHEELS**

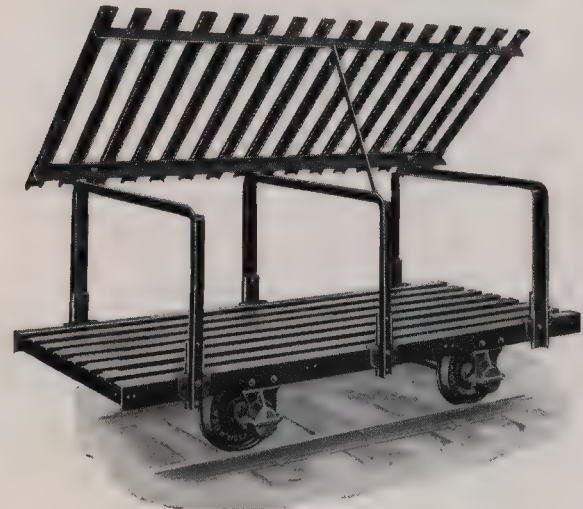
**FORMED UPRIGHTS**

**HOT GALVANIZED OR COPPER**

**STEEL WHEN REQUIRED**



**Style O**



**Style G**

**STYLE A**—is the simplest of all dryer cars—framework on running gear without slatted deck—customer furnishes a wood deck.

**STYLE B**—A complete single deck dryer car with slatted steel deck.

**STYLE G**—The standard double deck all steel car with two slatted decks—upper deck slats either crosswise as shown in cut, or longitudinal. Longitudinal upper deck can be split if desired, at no extra cost.

**STYLE E**—Same as Style G, but not equipped with upper deck—customer furnishes upper deck of wood.

**STYLE C**—Double deck car, but not equipped with either lower or upper deck—customer furnishes both of wood.



# DRYER CARS

**STYLE R**—A heavy duty double deck car with two steel decks, upper deck with slats either crosswise or longitudinal, we recommending crosswise.

**STYLE O**—The standard triple deck hollow tile or drain tile car with either three steel decks, or bottom deck of steel only, in which case customer furnishes two upper decks of wood, or it can be furnished with no decks, customer furnishing all three decks of wood. Upper two decks can be either split longitudinally, or hinged in accordance with customer's desires.

**STYLE F**—Standard pallet car for either steel or wooden pallets.

**STYLE P**—Heavy duty pallet car for fire brick, magnesite or silica brick.



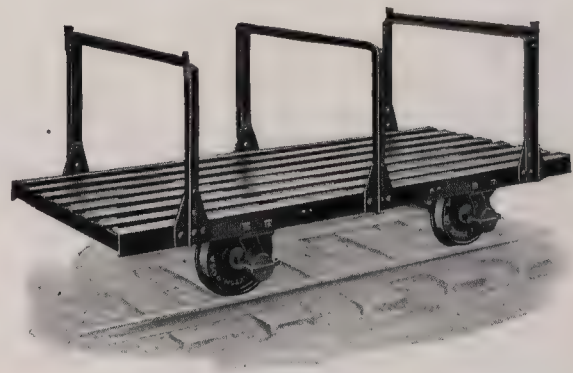
Style B



Style R—Heavy Duty



Style F



Style E

## SPECIFICATIONS

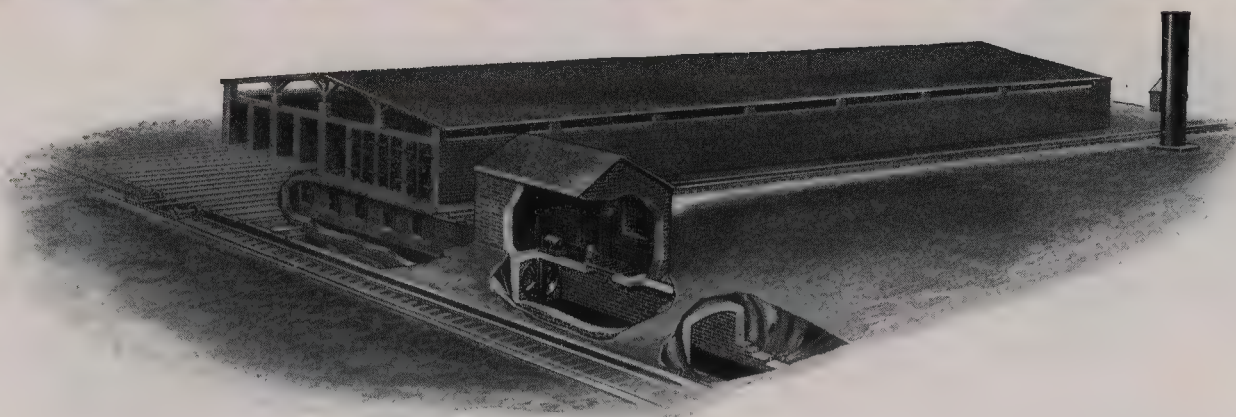
Type Car	Standard Length and Width	Height	Size Lower Deck	Height Decks	Size Upper Deck	Distance Between Decks	Pallet Cars	Wheels	Approx. Shipping Weight						
SINGLE DECK															
A	83" x 37 <sup>11</sup> / <sub>16</sub> "	12 <sup>1</sup> / <sub>4</sub> " or 11 <sup>3</sup> / <sub>4</sub> "	All standard lower decks 35" x 83"	Standard height to top of lower deck cast steel wheels 11 <sup>3</sup> / <sub>4</sub> ", cast iron wheels 12 <sup>1</sup> / <sub>4</sub> "	R and O—82" x 35" G—81" x 35"	G and R—23 <sup>1</sup> / <sub>2</sub> " O—17"; O—middle to upper—18 <sup>1</sup> / <sub>2</sub> "	Standard distance between Pallets 4 <sup>3</sup> / <sub>4</sub> ". Length pallets F—34 <sup>1</sup> / <sub>4</sub> "; P—30"	Cast steel 10", diam. tread 2 <sup>1</sup> / <sub>4</sub> " Cast iron 11", diam. tread 2 <sup>1</sup> / <sub>4</sub> "	270 lbs.						
B	83" x 37 <sup>11</sup> / <sub>16</sub> "	12 <sup>1</sup> / <sub>4</sub> " or 11 <sup>3</sup> / <sub>4</sub> "							345 lbs.						
DOUBLE DECK															
C	83" x 38 <sup>3</sup> / <sub>8</sub> "	33 <sup>1</sup> / <sub>4</sub> "							345 lbs.						
E	83" x 38 <sup>3</sup> / <sub>8</sub> "	33 <sup>1</sup> / <sub>4</sub> "							420 lbs.						
G	83" x 38 <sup>3</sup> / <sub>8</sub> "	35 <sup>3</sup> / <sub>4</sub> "							540 lbs.						
R	83 <sup>3</sup> / <sub>8</sub> " x 37 <sup>11</sup> / <sub>16</sub> "	35 <sup>3</sup> / <sub>4</sub> "							570 lbs.						
TRIPLE DECK															
O*	83 <sup>1</sup> / <sub>2</sub> " x 38 <sup>3</sup> / <sub>8</sub> "	54 <sup>3</sup> / <sub>4</sub> "	All standard lower decks 35" x 83"	Standard height to top of lower deck cast steel wheels 11 <sup>3</sup> / <sub>4</sub> ", cast iron wheels 12 <sup>1</sup> / <sub>4</sub> "	R and O—82" x 35" G—81" x 35"	G and R—23 <sup>1</sup> / <sub>2</sub> " O—17"; O—middle to upper—18 <sup>1</sup> / <sub>2</sub> "	Standard distance between Pallets 4 <sup>3</sup> / <sub>4</sub> ". Length pallets F—34 <sup>1</sup> / <sub>4</sub> "; P—30"	Cast steel 10", diam. tread 2 <sup>1</sup> / <sub>4</sub> " Cast iron 11", diam. tread 2 <sup>1</sup> / <sub>4</sub> "	440 lbs.						
O†	83 <sup>1</sup> / <sub>2</sub> " x 38 <sup>3</sup> / <sub>8</sub> "	54 <sup>3</sup> / <sub>4</sub> "							512 lbs.						
O‡	83 <sup>1</sup> / <sub>2</sub> " x 38 <sup>3</sup> / <sub>8</sub> "	54 <sup>3</sup> / <sub>4</sub> "							757 lbs.						
PALLET CARS															
F	75 <sup>1</sup> / <sub>2</sub> " x 36"	68 <sup>1</sup> / <sub>8</sub> "	All standard lower decks 35" x 83"	Standard height to top of lower deck cast steel wheels 11 <sup>3</sup> / <sub>4</sub> ", cast iron wheels 12 <sup>1</sup> / <sub>4</sub> "	R and O—82" x 35" G—81" x 35"	G and R—23 <sup>1</sup> / <sub>2</sub> " O—17"; O—middle to upper—18 <sup>1</sup> / <sub>2</sub> "	Standard distance between Pallets 4 <sup>3</sup> / <sub>4</sub> ". Length pallets F—34 <sup>1</sup> / <sub>4</sub> "; P—30"	Cast steel 10", diam. tread 2 <sup>1</sup> / <sub>4</sub> " Cast iron 11", diam. tread 2 <sup>1</sup> / <sub>4</sub> "	500 lbs.						
P	68 <sup>1</sup> / <sub>2</sub> " x 42"	68"							880 lbs.						

\*No decks. †One deck. ‡Three decks.

All cars shipped knocked down unless otherwise specified by customer. Ask for prices.



# WASTE HEAT DRYERS



The drying of all clays is controlled by three factors: 1 Temperature of the drying air; 2. Speed of velocity of the air; 3. Humidity, or amount of moisture in the air.

International design with the type of heat flue, dampers and fans, gives a most excellent control of the above three factors. Waste Heat Dryers are particularly adapted to those plants having at least 8 to 10 30-ft. round kilns, or a similar capacity in rectangular down draft kilns, or a continuous kiln or kilns in proportion.

In those plants where sufficient waste heat for drying is not always available, there can be installed an auxiliary furnace which is fired direct by coal, oil or gas, and connects with the waste heat flue at the hot end of the dryer. Note that International Waste Heat Dryers have a unique air-cooled axial blower fan thermostatically controlled (see cut) in the tunnel at the hot end pulling waste heat from the cooling kilns and an air-cooled stack fan (see cut) at the cooling end, pulling out the water-laden air. Each tunnel is dampered for perfect drying control.

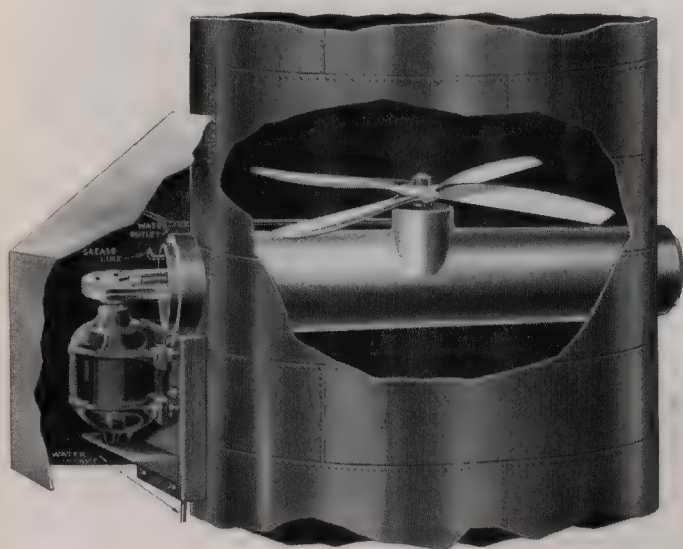


FIG. 11—Stack Fan



FIG. 142—Axial Blower Pulling from Kilns

## SPECIFICATIONS WASTE HEAT AND RADIATION DRYERS

No. of Tunnels	Standard Tunnel Length	Tunnel Inside Width	Tunnel Inside Height	No. of Dryer Cars per Tunnel	Brick Holding Capacity per Tunnel U. S. Size	Total Brick Holding Capacity	Approximate Net Weight of Ironwork			Approx. Number Building Brick to Build	Approx. Number Fire Brick to Build	Approx. Cu. Yd. Excavation from a Level	Weight of Coal Fired Furnace Equipment
							Waste Heat not Including Fans	Metallic Radiation	Radiated Heat				
4	100'	3'6"	5'	14	7000	28000	21200	27550	23000	98000	3890	260	1450 lbs.
6	100'	3'6"	5'	14	7000	42000	33000	41360	34000	139000	5970	380	2175 lbs.
8	100'	3'6"	5'	14	7000	56000	44000	52470	43500	181000	7960	500	2900 lbs.
10	100'	3'6"	5'	14	7000	70000	53000	67300	54000	220000	9950	625	3630 lbs.
12	100'	3'6"	5'	14	7000	84000	62000	80425	64500	258000	12000	750	4400 lbs.
16	100'	3'6"	5'	14	7000	112000	85000	105000	87000	361000	16000	1000	5800 lbs.
20	100'	3'6"	5'	14	7000	140000	105000	134000	108000	440000	20000	1250	7260 lbs.

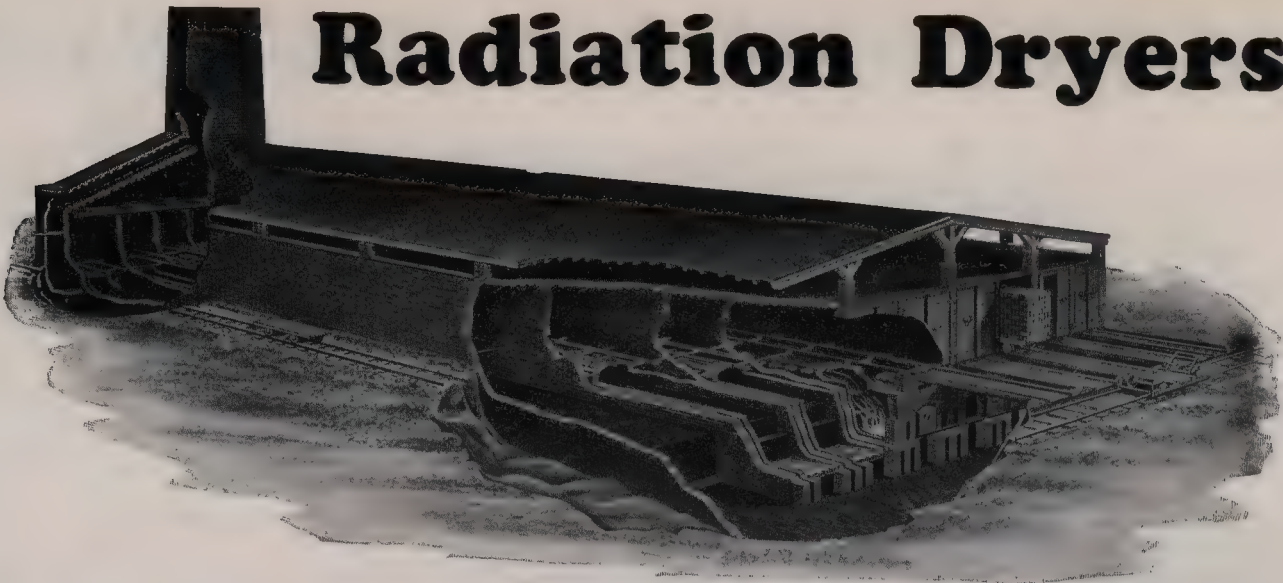
### NOTES

All brick holding capacity and brick to build are U. S. size (8x4x2 1/4)—fire brick 9x4 1/2 x 2 1/2".  
For export packing add approximately 10% to above weights.  
Number of dryer cars per 100' tunnel 14; tunnels 107'—15; 114'—16; 120'—17.  
Each dryer car figured to hold 500 U. S. size brick, or approximately 2000 to 2300 lbs. of hollow tile.

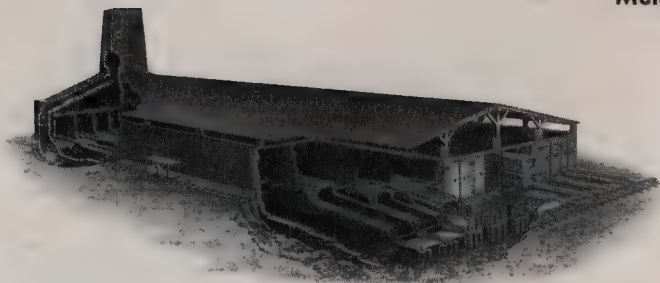
The average clay dries in 36 hours, so the dried capacity per day would be two-thirds of the holding capacities above. If clay dries in 48 hours, the dried capacity per day would be one-half of the holding capacities shown above.  
Total weights include furnace equipment for coal firing.  
Fire brick approximate. Amounts above do not include waste heat, which dryers require few or no fire brick.



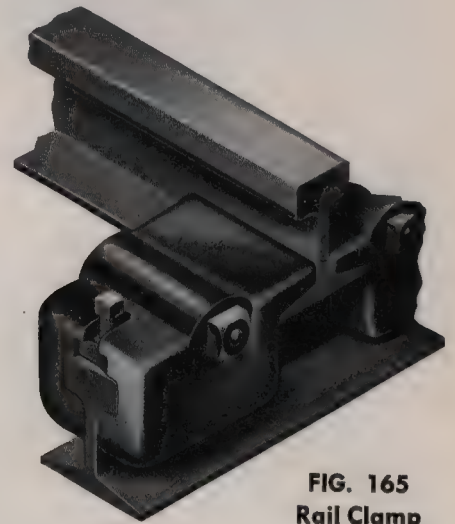
# Radiation Dryers



**Metallic Radiation**



**Radiated Heat Dryer**



**FIG. 165  
Rail Clamp**

## Metallic Radiation

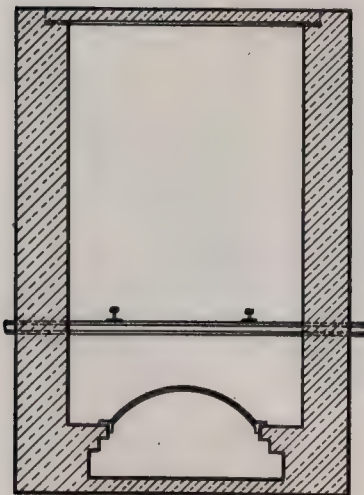
From a glance at the dryer cut and the longitudinal section shown, you will note that this direct fired type of tunnel Dryer has a furnace generally under each tunnel, using either coal, oil, gas or even wood as a fuel. The burned gases travel through a flue under the track, that part of the flue next to the furnace being constructed of fire brick, then a series of radiators or a spiral circular heavy galvanized pipe, changing near the cool end to a flat top brick tunnel, which tunnel empties into a cross flue leading to a stack or fan.

When a stack is used for the exhaust of the gases, note that the construction is such that the hot gases from the furnace entering the stack syphon the water-laden air from each tunnel to the stack. This radiation tunnel under the track heats the air going through the brick, but does not allow the possibility of sulphur-laden gases to touch and scum the product being dried.

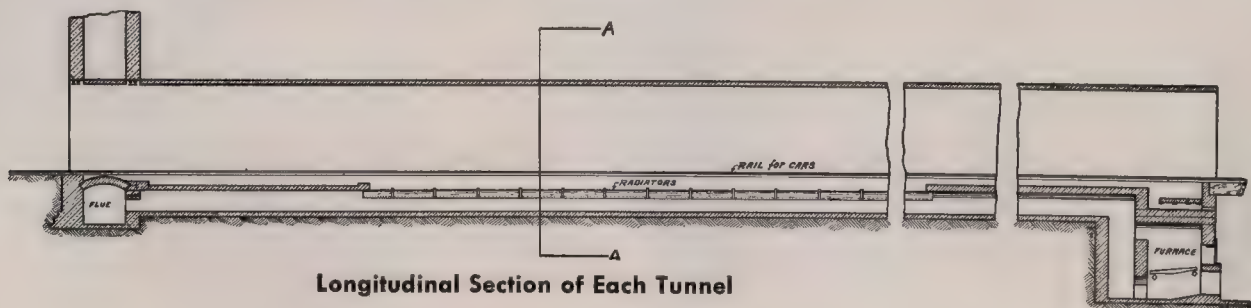
In many cases the stack is omitted and an exhaust stack fan is used as shown in the cut under Waste Heat Dryers. The track and the cross supports are made of industrial rail, tied together by a most excellent rail clamp.

## Radiated Heat Dryer

Where clays are too tender to be dried in a dryer with a Metallic Radiation flue, the flue is changed to one of brick laid flat on metal cross flue bars, which flue runs from the cold end and meets the fire brick furnace section. Metallic Radiation and Radiated Heat Dryers are used on those plants where waste heat from cooling kilns is not available.



**Section AA  
Showing Metallic Radiators**



**Longitudinal Section of Each Tunnel**



# Tunnel Kiln Cars

Over 90% of all the Kiln Cars operating in the two Americas have been constructed by International. WHY? Because International has equipment to turn out a better all-around, accurate car than anyone else. Whether the car has a cast or a structural body, International finishes the body in one setting or operation, so all car bodies are alike. All wheels are ground or turned on tread and flange to a template—not paired. No wonder International can make a better Kiln Car than anyone else.

## Miscellaneous Kiln Equipment

International also has furnished most of the trackage, ironwork, castings, doors and other similar equipment for railroad tunnel kiln construction.

## Periodic Kilns

International is in a position to furnish drawings and plans, as well as ironwork for Round Down Draft and Rectangular Down Draft Kilns of all standard sizes.



FIG. 156



FIG. 157—Fire Brick

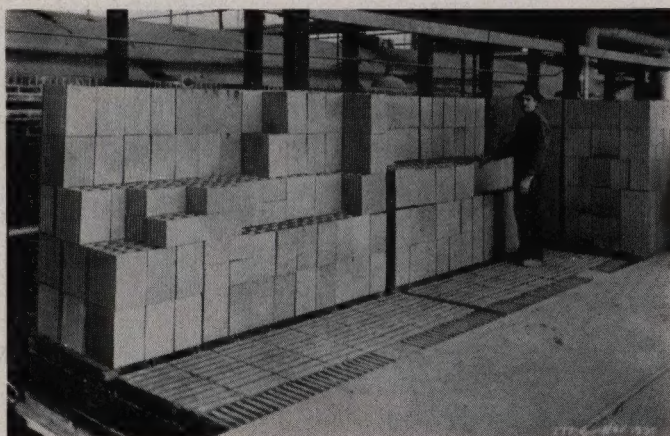


FIG. 157-A—Hollow Tile

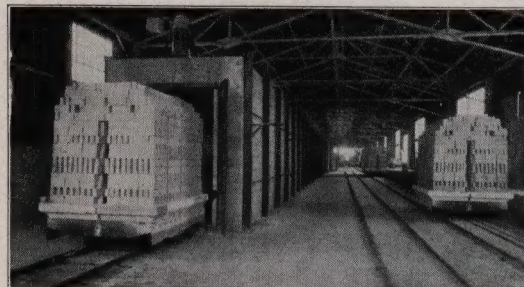


FIG. 158—Railroad Tunnel Kiln—Burning Brick

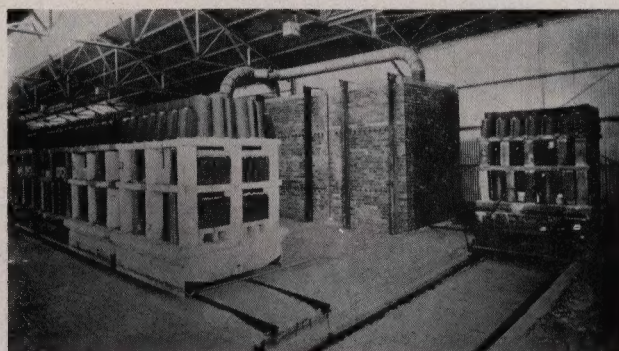


FIG. 159—Cars Loaded with Roofing Tile

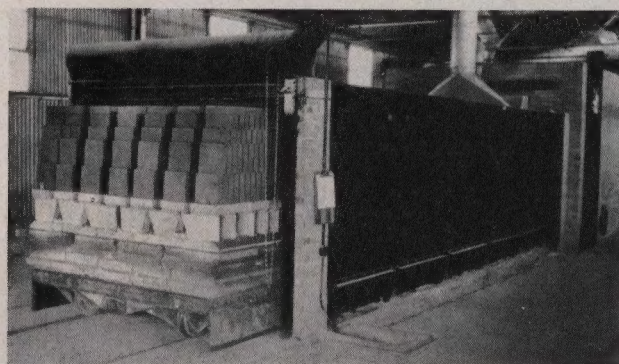


FIG. 160—Face Brick

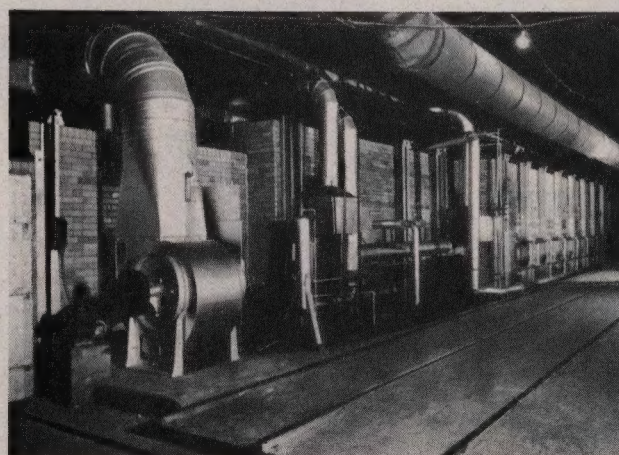


FIG. 161—Note Burners



# KILN COOLERS

The Kiln Cooler is used to increase kiln turnover by saving two or three days in the cooling of a kiln. The high velocity current of air from the fan, directed into the kiln while unloading, will produce good working conditions for your men and increase efficiency.

The International Kiln Cooler is a well engineered piece of equipment delivering a large volume of air and is tested for capacity under the code test of the American Society of Heating and Ventilating Engineers.

The third leg in the rear of the cooler is adjustable, giving vertical adjustment for direction of the air current.

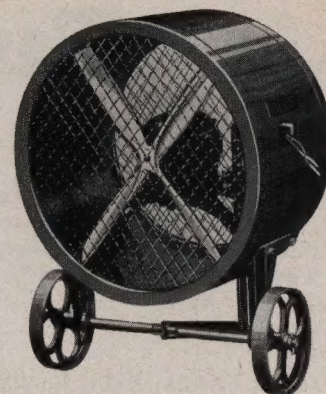


FIG. 166

## SIZES AND SPECIFICATIONS

Cooler No.	Propeller Diameter	No. Blades	R.P.M.	Motor H.P.	C.F.M. Code Capacity	Approx. Net Shipping Weight	Approximate Export Weight
27XB	27	4	1725	3/4	9000	280	325
30XA	30	2	1725	3/4	10675	300	350
30XB	30	4	1725	1 1/2	11838	390	440
30XC	30	8	1725	2	14000	500	550
36XA	36	2	1725	1 1/2	16800	420	480
36XB	36	4	1725	3	21000	460	520
36XC	36	8	1725	5	24800	530	590
48XA	48	2	1725	5	24000	700	790
48XB	48	4	1725	7 1/2	36000	760	850

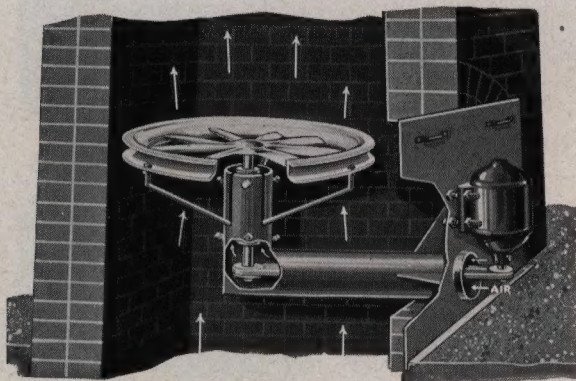


FIG. 167

## STACK BOOSTER FANS--Kiln

Something new—a boon to clay plants with periodical round or rectangular kilns—saves 24 to 48 hours in watersmoking a kiln—in many cases will do away with scumming in watersmoking—in other cases, it keeps brick from kiln marking.

An arched opening is cut in the stack at the ground line—the International Booster Fan is inserted when the kiln is lighted and removed when the temperature attains approximately 750° F. After the removal of the fan, the opening occupied by the fan is blocked with a suitable plate or cover and the stack booster fan is then ready for the next kiln.

This is an engineered job with guaranteed code capacities as specified below. The bearings and belt are cooled by outside air syphoned through the supporting tube.

This fan is made in three sizes and we would ask that you note carefully the outside diameter of each fan's venturi ring as this ring must enter the stack.

## SPECIFICATIONS

Fan Size	No. of Blades	H.P. Motor	Speed R.P.M. Propeller	Outside Diameter Venturi Fan Ring	Code Capacity Free Air	CODE CAPACITY—STATIC RES.							
						.20 Inches Water	.30	.50	.70	.90	Max. Static	Approx. Shipping Wt.—lbs.	Approx. Export Wt.—lbs.
20"	8	3/4	1750	23 3/4"	4747	4195	4083	3346	1702	1097	1.22	300	350
24"	8	1 1/2	1750	28 3/4"	7236	6707	6252	5431	3742	2715	1.34	450	500
30"	8	3	1750	34 1/2"	14000	13100	12700	11522	10518	9007	1.87	600	675

# KILN DRAFT FANS

International Kiln Draft Fans are designed either to pull the entire draft of a kiln or kilns, or assist a bad stack condition. They are particularly adapted to placing in a collecting flue serving a battery of kilns.

The flues of the individual kilns leading to the collecting flue are arranged with suitable dampers so that any one or more kilns can be drawing at a time.

In order to quote intelligently we must have from you the size of each kiln, capacity per kiln, type and weight of product made, temperature of burning, size of your present flues, both kiln and collecting, the point where fan is to be installed in flue; in fact, a sketch of your kiln layout would be of great help.

Note in cut that a thermostat can be arranged as a safety factor from a temperature standpoint.

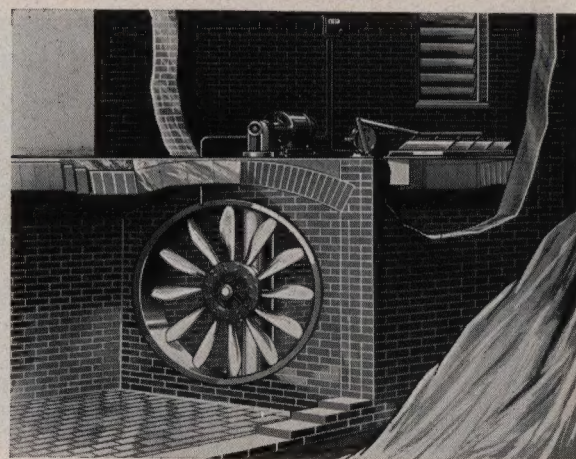


FIG. 168



# Dryer Forced Draft Fans

The International forced draft fan for dryer work is placed in the main flue leading to the dryer from the kilns—it pulls the otherwise waste heat from cooling kilns and forces it into the dryer tunnels.

This method of drying is not new but it has mostly been accomplished in the past by means of squirrel cage type of blowers which, compared with an International forced draft fan, has a relatively high original cost—a high maintenance because of the hot gases and a much higher power cost for operation.

The metal ring housing the propeller is built into the dryer flue. Immediately behind this ring and attached to it is a heavy vertical metal tube with a T section extending into the fan ring at the center.

The motor is arranged with a lowering and raising mechanism for adjusting the belts. Between the cartridge, housing the shaft and bearings and the T section of the tube is an open sector so that the air velocity in the tunnel proper causes a vacuum in the upright tube, which in turn causes a rush of cool outside air to continually pull down through the upright tube and this cool air continually bathes the belt drive and the cartridge containing the shaft and bearings—emerging from the T part of the tube directly behind the propellers. Pressure lubrication used with leads coming up through vertical pipe—easy to get at. Simple, isn't it? Yes, but very efficient from a cooling standpoint.

The following sizes of propellers are available:

- 30"—4 and 8 blade
- 36"—4 and 8 blade
- 48"—4 and 8 blade
- 54"—4, 6 and 8 blade
- 60"—4, 6 and 8 blade
- 72"—4, 6, 8 and 12 blade
- 84"—6, 8 and 12 blade

Capacities in free air of 11,000 c.f.m. to 200,000 c.f.m. are available.

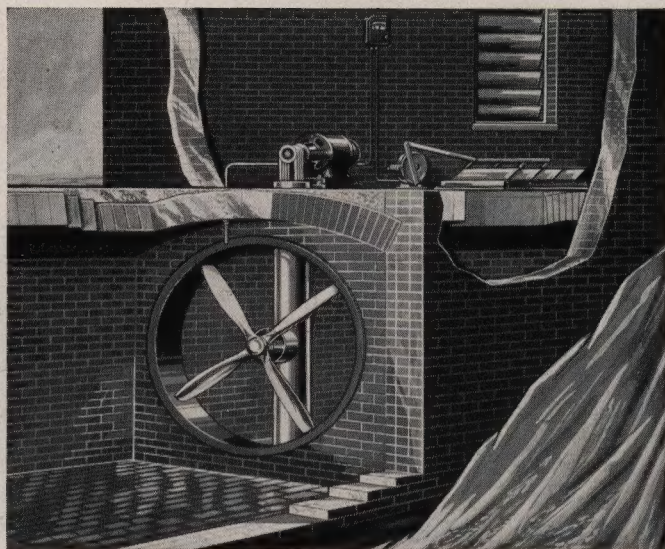


FIG. 169

To intelligently quote, we must know the amount of air required against a certain static, or the size of your dryer, type of product, tonnage of product in the dryer, the time of drying, and if possible, the percentage of water in the material, also size of your present flue from kilns to dryer.

Note from cut at top that a thermostat is available as a safety factor in case it is desired.

## DRYER STACK FANS

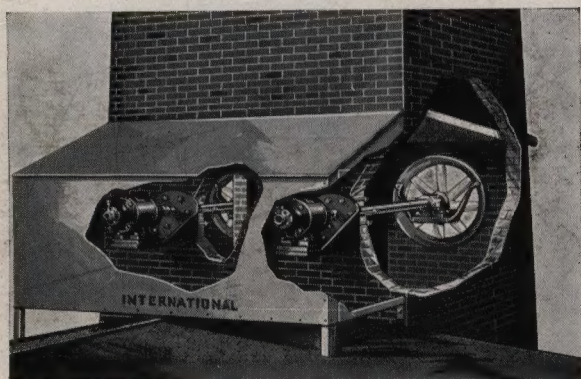


FIG. 170

To make an International installation, it is necessary that you first advise the exact inside width of your stack with the thickness of the stack walls, you, of course, remembering that the fan goes through the stack the short way. This information gives us the exact length of the extension of the fan shaft.

Also give us the length of time to dry your product, that is, is it dried in 24, 36 or 48 hours. Give us the type of product manufactured

We believe that it would be a conservative statement to say that two-thirds of the tunnel dryers now operating could increase their capacity by having a constant stack draft. Why be dependent on weather conditions when an International fan will give you a constant air stream in a mechanical manner?

International Dryer Stack Fans operating at a constant daily speed tend not only to increase the capacity of a present dryer installation, but at the same time tend to cut down your losses in dryer breakage due to the daily variance in draft conditions.

We can safely say that the installation of International extended shaft fans in your present stacks will pay for themselves in a very short time.

by you, the number of tunnels of your present dryer, with the length of the tunnels, the capacity of your product that you are now daily drying, all of which information will allow us to suggest the proper type and size of fan required.

Remember that it is also necessary to tell us your electric current characteristics.



**INTERNATIONAL  
CLAY MACHINERY CO.**

**DAYTON, OHIO, U. S. A.**

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**Catalogue No. 55**